GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 48.2298 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1270	99.5	241	12	AAR13063	Human NGF SmaI-Apa
2	1270	99.5	241	12	AAR11474	Human nerve growth
3	1270	99.5	241	12	AAR13858	Human nerve growth
4	1270	99.5	241	16	AAR77419	Human nerve growth
5	1270	99.5	241	16	AAR66688	Human nerve growth
6	1270	99.5	241	18	AAW26237	Human preproNGF.
7	1270	99.5	241	19	AAW48886	Human prepro-nerve
8	1270	99.5	241	20	AAY07303	Human nerve growth
9	1270	99.5	241	22	AAB66929	Human NGF. Homo s
10	1270	99.5	241	23	AAE18904	Human beta nerve g
11	1270	99.5	241	23	ABB04994	Human beta nerve g
12	1270	99.5	245	5	AAP40038	Sequence encoded b
13	1267	99.2	307	14	AAR45241	Human pre-pro nerv
14	1266	99.1	241	22	AAB67865	Amino acid sequenc
15	1266	99.1	307	14	AAR37799	Human NGF. Homo s
16	1264	99.0	307	19	AAW69725	Human beta-nerve g
17	1238	96.9	239	14	AAR43910	Nerve growth facto
18	1188.5	93.1	241	12	AAR13886	NGF with pro-regio
19	1175	92.0	222	21	AAW90884	Human proNGF prote
20	1096	85.8	240	23	AAM50845	Mouse nerve growth
21	1096	85.8	307	5	AAP40036	Sequence encoded b
22	1096	85.8	307	5	AAP40039	Sequence encoded b
23	1093	85.6	307	14	AAR45240	Cloned mouse pre-p
24	996	78.0	240	14	AAR43937	Sequence of pro re
25	996	78.0	240	15	AAR56451	Human NGF-2/NT-3 e
26	991	77.6	240	13	AAR26273	NGF2/NT-3 in pTB13
27	682	53.4	129	14	AAR37539	Recombinant beta-N
28	682	53.4	129	18	AAW24145	Recombinant mini-f
29	661	51.8	124	13	AAR21851	Chimeric neurotrop
30	657.5	51.5	154	13	AAR22751	Human growth hormo
31	651	51.0	120	20	AAW81117	Nerve growth facto
32	651	51.0	120	21	AAB29141	N-terminal of neut
33	651	51.0	120	22	AAG64994	Nerve growth facto
34	651	51.0	120	22	AAB35944	NGF-beta amino aci
35	648	50.7	156	23	AAM50303	Nerve growth facto
36	648	50.7	157	21	AAB01596	Nerve growth facto
37	648	50.7	157	22	AAG67677	Amino acid sequenc
38	648	50.7	157	23	AAU85725	Synthetic nerve gr
39	647.5	50.7	166	23	AAM50301	Nerve growth facto
40	647.5	50.7	167	22	AAG67679	Amino acid sequenc
41	647	50.7	261	10	AAP91299	Human nerve growth
42	647	50.7	262	7	AAP61033	Human beta-nerve g
43	643	50.4	120	17	AAR90531	Pantropic neurotro
44	642	50.3	118	10	AAP91034	Human nerve growth
45	642	50.3	119	5	AAP40040	Sequence encoded b

ALIGNMENTS

RESULT 1
AAR13063
ID AAR13063 standard; Protein; 241 AA.
XX
AC AAR13063;
XX
DT 30-SEP-1991 (first entry)
XX
DE Human NGF SmaI-ApaI fragment prod.
XX
KW Expression vector; human nerve growth factor; yeast;
KW senile dementia.
XX
OS Homo sapiens.
XX
PN JP03139285-A.
XX
PD 13-JUN-1991.
XX
PF 20-DEC-1989; 89JP-0328199.
XX
PR 27-JUL-1989; 89JP-0192581.
XX
PA (TAKE) TAKEDA CHEMICAL IND KK.
XX
DR WPI; 1991-218449/30.
DR N-PSDB; AAQ12638.
XX
PT New yeast expression vector - used in prodn. of human nerve growth
PT factor from corresp. yeast.
XX
PS Disclosure; Fig 1(1-2); 14pp; Japanese.
XX

```
CC   Human NGF is useful as a reagent for study of the nervous system, and
CC   for treatment of senile dementia.  The DNA encoding this fragment was
CC   derived from the human gene or is synthesised chemically.
CC   See also AAQ12639.
XX
SQ   Sequence  241 AA;

  Query Match             99.5%;  Score 1270;  DB 12;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 2
AAR11474
ID   AAR11474 standard; Protein; 241 AA.
XX
AC   AAR11474;
XX
DT   26-APR-1991  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   NGF; senile dementia.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= signal sequence
FT   Protein         19..241
FT                   /label= pro-NGF
FT   Protein         122..241
FT                   /label= mature NGF
FT   Disulfide-bond  135..202
FT   Disulfide-bond  180..230
FT   Disulfide-bond  190..232
XX
PN   EP414151-A.
XX
PD   27-FEB-1991.
XX
PF   17-AUG-1990;   90EP-0115815.
XX
PR   21-AUG-1989;   89JP-0212980.
PR   20-DEC-1989;   89JP-0328198.
PR   13-APR-1990;   90JP-0096252.
PR   07-JUN-1990;   90JP-0147392.
XX
PA   (TAKE ) TAKEDA CHEMICALS IND KK.
XX
PI   Kakinuma A,  Nakahama K,  Yoshimura K,  Kaisho Y,  Iwanw M;
XX
DR   WPI; 1991-059398/09.
DR   N-PSDB; AAQ10620.
XX
PT   Human nerve growth factor containing cysteine residues - used as
PT   reagent and therapeutic drug for senile dementia.
XX
PS   Claim 1; Fig 1; 33pp; English.
XX
CC   The sequence was deduced from a clone isolated from a lambda EMBL3
CC   genomic library prepd. from human leukocyte DNA, using a probe
CC   synthesised based on the sequence of the known human NGF gene [A.
CC   Ullrich et al., Nature  303, 821 (1983)]. The clone, betaLN2113,
CC   isolated from the library was cleaved with SmaI and ApaI to remove
CC   a 1kb fragment contg. the gene which was then inserted into plasmid
CC   pBluescript IIK to obtain pNGFP107G.  The gene was sequenced from
CC   this plasmid using Seeknase (Biochemical).  The sequence of the
CC   protein coding region was found to be in complete agreement with
CC   that of Ullrich et al.  The sequence was used to produce
CC   recombinant h-NGF for use in the prodn. of drugs for e.g. senile
CC   dementia.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 12;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 3
AAR13858
ID   AAR13858 standard; Protein; 241 AA.
XX
AC   AAR13858;
XX
DT   21-NOV-1991  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   hNGF.
XX
OS   Homo sapiens.
XX
PN   JP03175976-A.
XX
PD   31-JUL-1991.
XX
PF   12-DEC-1989;   89JP-0320483.
XX
PR   30-SEP-1989;   89JP-0253796.
PR   15-DEC-1988;   88JP-0314860.
PR   12-DEC-1989;   89JP-0320483.
XX
PA   (TAKE ) TAKEDA CHEMICAL IND KK.
XX
```

```
DR   WPI; 1991-269694/37.
DR   N-PSDB; AAQ13397.
XX
PT   Secretory prepn. of animal protein - by culturing
PT   Schizosaccharomyces pombe which retains DNA at 3'-terminal of
PT   promoter region.
XX
PS   Disclosure; Fig 3; 12pp; Japanese.
XX
CC   The amino acid sequence is encoded that of human nerve growth factor
CC   (NGF). It may be expressed in Schizosaccharomyces pombe using the
CC   glyceraldehyde-3-phosphate dehydrogenase (GLD) gene promoter.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 12;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 4
AAR77419
ID   AAR77419 standard; Protein; 241 AA.
XX
AC   AAR77419;
XX
DT   10-FEB-1996  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   Nerve growth factor; neurotrophic factor; therapeutic;
KW   protein refolding; NGF.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Protein         122..241
FT                   /note= "mature protein"
FT   Region          1..121
FT                   /note= "pre-region"
XX
PN   WO9530686-A1.
XX
PD   16-NOV-1995.
XX
PF   02-MAY-1995;   95WO-US05423.
XX
PR   27-JUN-1994;   94US-0266080.
PR   09-MAY-1994;   94US-0240122.
XX
PA   (SYNT ) SYNTEX-SYNERGEN NEUROSCIENCE JOINT VENTU.
XX
PI   Bonam D,  Kohno T,  Lile J,  Rosendahl MS;
XX
DR   WPI; 1995-404080/51.
DR   N-PSDB; AAT05437.
XX
PT   Process for bacterial expression of recombinant neurotrophic factor
PT   - useful for promoting the survival and maintaining phenotypic
PT   differentiation of nerve and glial cells.
XX
PS   Disclosure; Page 33-34; 57pp; English.
XX
CC   The nerve growth factor (NGF) gene is expressed in Escherichia
CC   coli cells.  The recombinant protein is solubilized and
CC   sulfonylated and allowed to refold in the presence of PEG and urea.
CC   Biologically active NGF, used for promoting the survival of and
CC   maintaining the phenotypic differentiation of nerve and glial cells,
CC   is isolated and purified.  This method breaks incorrectly formed
CC   disulphide bonds and allows refolding of the factor into the correct
CC   tertiary structure required for maximum yield of full active protein.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 16;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 5
AAR66688
ID   AAR66688 standard; Protein; 241 AA.
XX
AC   AAR66688;
XX
DT   23-AUG-1995  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   Human nerve growth factor; hNGF; polyclonal antibody;
KW   immunogen; enzyme immunoassay.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= sig_peptide
FT   Peptide         19..121
FT                   /label= pro_peptide
FT   Misc-difference 8
FT                   /note= "corresponding codon TCG"
FT   Misc-difference 59
FT                   /note= "corresponding codon TAT"
FT   Misc-difference 173
FT                   /note= "corresponding codon TAG"
FT   Disulfide-bond  136..201
```

```
FT   Disulfide-bond  179..229
FT   Disulfide-bond  189..231
XX
PN   JP06317587-A.
XX
PD   15-NOV-1994.
XX
PF   14-FEB-1991;   91JP-0021181.
XX
PR   31-AUG-1990;   90JP-0231317.
XX
PA   (TAKE ) TAKEDA CHEM IND LTD.
XX
DR   WPI; 1995-033116/05.
DR   N-PSDB; AAQ79871.
XX
PT   Polyclonal antibody against human nerve growth factor (NGF) -
PT   useful to detect human NGF, for diagnosis of disease
XX
PS   Example 1; Pages 31-33; 35pp; Japanese.
XX
CC   AAQ79871 encodes AAR66688 human nerve growth factor (hNGF), the
CC   protein was used as an immunogen to generate a polyclonal
CC   antibody against hNGF. The polyclonal antibody can be used
CC   to detect and determine hNGF pref. by enzyme immunoassay.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 16;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
          |
Db     241 A 241


RESULT 6
AAW26237
ID   AAW26237 standard; Protein; 241 AA.
XX
AC   AAW26237;
XX
DT   16-MAR-1998  (first entry)
XX
DE   Human preproNGF.
XX
KW   Fusion protein; hydrophilic spacer; recombinant; expression system;
KW   carboxypeptidase; preproNGF.
XX
OS   Homo sapiens.
XX
PN   WO9728272-A1.
XX
PD   07-AUG-1997.
XX
PF   31-JAN-1997;   97WO-US01470.
XX
PR   31-JAN-1996;   96US-0595043.
XX
PA   (TECH-) TECHNOLOGENE INC.
XX
PI   Sgarlato GD;
XX
DR   WPI; 1997-402624/37.
DR   N-PSDB; AAT80162.
XX
PT   Recombinant protein expression system for fusion protein production
PT   - useful for high quantity production of authentic recombinant
PT   proteins
XX
PS   Example 6; Page 140-141; 194pp; English.
XX
CC   A novel recombinant vector has been developed which comprises a
CC   nucleotide sequence encoding a fusion protein. The fusion protein
CC   comprises three domains joined together in order, from N-terminus to
CC   C-terminus, of a first domain comprising a protein of interest, a second
CC   domain comprising a hydrophilic spacer and an affinity domain, each
CC   domain comprising amino acid residues. The present sequence represents
CC   human preproNGF, used in example 6 of the present invention. The
CC   recombinant vector is used for the production of authentic recombinant
CC   proteins of interest. The method of the invention is useful for the
CC   expression of fusion proteins capable of isolation by affinity
CC   chromatography in pro- or eukaryotic cells. This method allows
CC   for the efficient cleavage and generation of authentic proteins of
CC   interest that do not contain extraneous (i.e. non-naturally occurring)
CC   amino acids.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 18;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
          |
Db     241 A 241


RESULT 7
AAW48886
ID   AAW48886 standard; Protein; 241 AA.
XX
AC   AAW48886;
XX
DT   12-OCT-1998  (first entry)
XX
DE   Human prepro-nerve growth factor beta chain.
XX
KW   Neurotrophin; nerve growth factor; NGF; human; purification;
KW   hydrophobic interaction chromatography.
XX
OS   Homo sapiens.
XX
```

```
FH   Key             Location/Qualifiers
FT   Protein         1..121
FT                   /label= Prepro_region
FT   Protein         122..241
FT                   /label= Mat_protein
FT   Modified-site   167
FT                   /note= "N-glycosylated"
FT   Region          179..189
FT                   /note= "conserved Cys-containing region involved in
FT                          Cys knot motif"
FT   Region          229..231
FT                   /note= "conserved Cys-containing region involved in
FT                          Cys knot motif"
XX
PN   WO9821234-A2.
XX
PD   22-MAY-1998.
XX
PF   14-NOV-1997;   97WO-US21068.
XX
PR   29-MAY-1997;   97US-0047855.
PR   15-NOV-1996;   96US-0030838.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Beck JT,  Burton LE,  Schmelzer CH;
XX
DR   WPI; 1998-322333/28.
XX
PT   Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT   variant(s) - using hydrophobic interaction chromatography,
PT   optionally in combination with high performance cation exchange
PT   chromatography
XX
PS   Disclosure; Fig 4; 59pp; English.
XX
CC   This polypeptide comprises the human nerve growth factor (NGF)
CC   beta chain precursor.  Methods are provided for large-scale
CC   purification of neurotrophins, including mature NGF, suitable for
CC   clinical use.  A claimed method comprises: (1) separating the
CC   neurotrophin from the other proteins using a hydrophobic
CC   interaction chromatography resin (HICR); and optionally (2)
CC   separating the neurotrophin from a chemical variant by high
CC   performance cation exchange chromatography (HPCEC).  The processes
CC   can also be used for purification of e.g. mouse NGF (see AAW48887),
CC   brain-derived neurotrophic factor (see AAW48888), neurotrophin-4/5
CC   (see AAW48890) and neurotrophin-3 (see AAW48889).  The processes allow
CC   separation of neurotrophins from various undesirable misprocessed,
CC   misfolded, size, glycosylated or charge forms.  They allow selective
CC   separation from their variants and other molecules, and from other
CC   polypeptides with high pI.  The processes are applicable to
CC   starting materials from various sources, including fermentation
CC   broths or lysed bacterial or mammalian cells.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 19;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 8
AAY07303
ID   AAY07303 standard; Protein; 241 AA.
XX
AC   AAY07303;
XX
DT   06-JUL-1999  (first entry)
XX
DE   Human nerve growth factor beta protein.
XX
KW   Cerebrospinal; axon; growth; mammal; spinal cord injury; lesion; NGF2;
KW   expression vector; neurotrophin; nerve growth factor 2; neurotrophin 3;
KW   NT3; voluntary motor function.
XX
OS   Homo sapiens.
XX
PN   WO9900148-A2.
XX
PD   07-JAN-1999.
XX
PF   30-JUN-1998;   98WO-US13778.
XX
PR   30-JUN-1997;   97US-0051255.
XX
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Gage FH,  Grill R,  Tuszynski MH;
XX
DR   WPI; 1999-095478/08.
DR   N-PSDB; AAX34366.
XX
PT   Treating spinal cord injuries in a mammal  - by inducing growth of
PT   cerebrospinal projection axons using a recombinant vector for
PT   expressing CST neurotrophin
XX
PS   Disclosure; Fig 6; 49pp; English.
XX
CC   The invention relates to a method of inducing cerebrospinal projection
CC   (CST) axon growth in a mammal with a spinal cord injury that involves
CC   a CST lesion by delivering a recombinant expression vector for CST
CC   neurotrophin, such as this sequence  - nerve growth factor beta.  The
CC   method is used to induce partial recovery of voluntary motor function
CC   in a mammal after disruption of corticospinal projections in the spinal
CC   cord.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 20;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
```

```
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 9
AAB66929
ID   AAB66929 standard; Protein; 241 AA.
XX
AC   AAB66929;
XX
DT   17-APR-2001  (first entry)
XX
DE   Human NGF.
XX
KW   Human; neuroprotective; neuronal factor; NF; neuronotrophin-3; NT-3;
KW   neurodegenerative disease; Alzheimer's disease; Parkinson's disease;
KW   Huntington's chorea; nerve damage; nerve growth factor; NGF.
XX
OS   Homo sapiens.
XX
PN   US6174701-B1.
XX
PD   16-JAN-2001.
XX
PF   31-MAY-1995;   95US-0455741.
XX
PR   15-MAR-1990;   90US-0494024.
PR   31-JAN-1995;   95US-0381030.
PR   12-DEC-1989;   89US-0449811.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A,  Winslow JW;
XX
DR   WPI; 2001-201803/20.
XX
PT   New nucleic acid encoding a neuronal factor (rat precursor
PT   neuronotrophin-3, NT-3), useful in the recombinant preparation of NT-3,
PT   which is useful for enhancing the survival of nerve cells and treating
PT   neurodegenerative diseases  -
XX
PS   Disclosure; Fig 3; 18pp; English.
XX
CC   The present invention relates to neuronal factor (NF; also known as
CC   neuronotrophin-3/NT-3; see AAF55829-AAF55830 and AAB66927-AAB66928). NF
CC   is useful in treating neurodegenerative diseases, e.g. Alzheimer's
CC   disease, Parkinson's disease, Huntington's chorea and other conditions
CC   characterised by necrosis or loss of neurons. NF is also useful for
CC   treating damaged nerves, e.g. nerves damaged by traumatic conditions such
CC   as burns or wounds. The present sequence is human nerve growth factor
CC   (NGF), which was used in a sequence homology alignment with human NF
CC   protein.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 22;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 10
AAE18904
ID   AAE18904 standard; Protein; 241 AA.
XX
AC   AAE18904;
XX
DT   21-MAY-2002  (first entry)
XX
DE   Human beta nerve growth factor (NGF) protein.
XX
KW   Human; nerve growth factor; NGF; neurotrophin; cholinergic neuron;
KW   gene therapy; neuroprotective; Alzheimer's disease; Parkinson's disease;
KW   neurodegenerative condition; ALS; amyotrophic lateral sclerosis.
XX
OS   Homo sapiens.
XX
PN   WO200207774-A2.
XX
PD   31-JAN-2002.
XX
PF   17-MAY-2001; 2001WO-US16122.
XX
PR   19-JUL-2000; 2000US-0620174.
XX
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Tuszynski MH;
XX
DR   WPI; 2002-195846/25.
DR   N-PSDB; AAD30144.
XX
PT   Delivering therapeutic neurotrophin to targeted defective, diseased or
PT   damaged cholinergic neurons, useful for treating neurodegenerative
PT   disease, comprises administering a neurotrophin encoding transgene into
PT   the brain  -
XX
PS   Example 1; Fig 2; 38pp; English.
XX
CC   The invention relates to a method for delivering therapeutic neurotrophin
CC   to targetted defective, diseased or damaged cholinergic neurons in
CC   the mammalian brain. The method comprises delivering a neurotrophic
CC   composition comprising a neurotrophin encoding transgene into one or more
CC   delivery sites within a region of the brain containing targetted neurons.
CC   The method is useful for treating neurodegenerative conditions such as
CC   Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis
CC   (ALS) in primates by stimulating the growth of neurons thus recovering
CC   neurological function. The present sequence is human nerve growth factor
CC   (NGF-2) protein which is a neurotrophin.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 23;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120
```

```
Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 11
ABB04994
ID   ABB04994 standard; Protein; 241 AA.
XX
AC   ABB04994;
XX
DT   19-MAR-2002  (first entry)
XX
DE   Human beta nerve growth factor protein.
XX
KW   Human; nerve growth factor 2; beta nerve growth factor; NGF-2; NT-3;
KW   neurotrophin-3; nervous system growth factor; neuronal atrophy;
KW   aging; brain; axonal growth; neuron; nootropic; neuroprotective;
KW   anti-aging; cholinergic neuron growth stimulator; gene therapy.
XX
OS   Homo sapiens.
XX
PN   US2001043920-A1.
XX
PD   22-NOV-2001.
XX
PF   05-DEC-2000; 2000US-0730790.
XX
PR   15-APR-1998;   98US-0060543.
XX
PA   (TUSZ/) TUSZYNSKI M H.
PA   (BLES/) BLESCH A.
XX
PI   Tuszynski MH,  Blesch A;
XX
DR   WPI; 2002-105567/14.
DR   N-PSDB; ABA92503.
XX
PT   Ameliorating neuronal atrophy and loss of accompanying normal aging
PT   comprises delivering a transgene encoding a growth factor to a
PT   mammalian brain to stimulate axon growth in cholinergic neurons  -
XX
PS   Disclosure; Fig 6 1-2; 18pp; English.
XX
CC   The present invention describes a method for ameliorating neuronal
CC   atrophy and loss of accompanying normal aging in the mammalian brain.
CC   The method comprises delivering a growth factor (GF)-encoding transgene
CC   to preselected delivery sites in the brain, so that the encoded GF is
CC   expressed in the brain and stimulates axonal growth in targeted
CC   GF-receptive neurons. The growth factor has nootropic, neuroprotective
CC   and anti-aging activities, and can be used as a cholinergic neuron
CC   growth stimulator and in gene therapy. The method is used to
CC   ameliorating neuronal atrophy and loss of accompanying normal aging, in
CC   the human brain. The present sequence represents human beta nerve growth
CC   factor, which is given in the exemplification of the present invention.
XX
SQ   Sequence   241 AA;

  Query Match             99.5%;  Score 1270;  DB 23;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 12
AAP40038
ID   AAP40038 standard; Protein; 245 AA.
XX
AC   AAP40038;
XX
DT   25-JAN-1992  (first entry)
XX
DE   Sequence encoded by portion of human beta-nerve growth factor
DE   (NGF) chromosomal gene which includes an exon.
XX
KW   Nerve damage; therapy.
XX
OS   Homo sapiens.
XX
PN   EP121338-A.
XX
PD   10-OCT-1984.
XX
PF   02-MAR-1984;   84EP-0301377.
XX
PR   03-MAR-1983;   83US-0471962.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Gray AM,  Ullrich A;
XX
DR   WPI; 1984-251909/41.
DR   N-PSDB; AAN40033.
XX
PT   Human beta-nerve growth factor free from other proteins - obtd.
PT   by recombinant DNA techniques for treating nerve damage
XX
PS   Example; Fig 5; 42pp; English.
XX
CC   The inventors claim human beta-nerve growth factor (NGF) free from
CC   other proteins of human origin. Also claimed are the DNA sequence
CC   encoding human beta-NGF operably linked with a DNA sequence capable
CC   of effecting its expression in a recombinant host cell; a replicable
CC   expression vector contg. the DNA; and host cells transformed with
CC   the vector. The plasmid claimed is plasmid ph-beta-NGF trp 1. Using
CC   the plasmid, larger amounts of pure beta-NGF are obtainable than by
CC   extn. of natural materials, see e.g. EP--2139.
XX
SQ   Sequence   245 AA;

  Query Match             99.5%;  Score 1270;  DB 5;  Length 245;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-134;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      5 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 64

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
```

```
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      65 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 124

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     125 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 184

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     185 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 244

Qy     242 A 242
                |
Db     245 A 245


RESULT 13
AAR45241
ID   AAR45241 standard; Protein; 307 AA.
XX
AC   AAR45241;
XX
DT   20-JUN-1994  (first entry)
XX
DE   Human pre-pro nerve growth factor.
XX
KW   Mature; beta-nerve growth factor; pre-pro portion;
KW   expression; NGF; hNGF; treatment; Alzheimer's Disease.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..187
FT                   /note= "signal peptide"
FT   Peptide         188..307
FT                   /note= "mature peptide"
XX
PN   US5272063-A.
XX
PD   21-DEC-1993.
XX
PF   20-JUN-1989;   89US-0383118.
XX
PR   22-NOV-1988;   88US-0274878.
PR   20-JUL-1989;   89US-0383118.
XX
PA   (SYNT ) SYNTEX USA INC.
XX
PI   Baecker PA,  Barnett JW,  Bursztyn-Pettegrew H,  Chan HW,  Nguyen BT;
PI   Ward C;
XX
DR   WPI; 1993-413401/51.
DR   N-PSDB; AAQ54283.
XX
PT   Prodn. of active mature human beta-nerve growth factor in insect
PT   cells - using baculovirus expression system, and potential use of
PT   recombinant hNGF in treatment of Alzheimer's disease
XX
PS   Disclosure; Fig 1; 23pp; English.
XX
CC   The sequence is that of human pre-pro nerve growth factor
CC   which was used in a method of producing biologically active
CC   mature human beta-nerve growth factor in insect cells.
XX
SQ   Sequence   307 AA;

  Query Match             99.2%;  Score 1267;  DB 14;  Length 307;
  Best Local Similarity   99.6%;  Pred. No. 4.2e-134;
  Matches  240;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      67 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 126

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||:|||||
Db     127 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNKTHRSK 186

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     187 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 246

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     247 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 306

Qy     242 A 242
                |
Db     307 A 307


RESULT 14
AAB67865
ID   AAB67865 standard; Protein; 241 AA.
XX
AC   AAB67865;
XX
DT   29-JUN-2001  (first entry)
XX
DE   Amino acid sequence of a human polypeptide designated PTMA-8.
XX
KW   PTMA; immune deficiency; infection; autoimmune disorder; wound closure;
KW   connective tissue disease; multiple sclerosis; rheumatoid arthritis;
KW   systemic lupus erythematosus; autoimmune pulmonary inflammation; ulcer;
KW   Guillian-Barre syndrome; autoimmune thyroiditis; myasthenia gravis;
KW   insulin dependent diabetes mellitus; graft-versus-host disease;
KW   autoimmune inflammatory eye disease; gut protection; gut regeneration;
KW   fibrosis; reperfusion injury; systemic cytokine damage.
XX
OS   Homo sapiens.
XX
PN   WO200123572-A2.
XX
PD   05-APR-2001.
XX
PF   29-SEP-2000; 2000WO-US41035.
XX
PR   30-SEP-1999;   99US-0156745.
PR   06-OCT-1999;   99US-0158942.
PR   13-OCT-1999;   99US-0159248.
PR   06-DEC-1999;   99US-0169344.
PR   29-JUN-2000; 2000US-0215048.
XX
PA   (CURA-) CURAGEN CORP.
XX
PI   Prayaga SK,  Vernet C,  Shimkets RA,  Burgess C,  Spytek KA;
XX
DR   WPI; 2001-273512/28.
DR   N-PSDB; AAF80462.
XX
PT   Novel polypeptides termed PTMAX, and nucleic acids encoding PTMAX,
PT   useful for detecting and treating diseases caused immune deficiencies -
XX
PS   Claim 1; Page 20-22; 128pp; English.
XX
CC   The present sequence represents a PTMA-8 (not defined) polypeptide. The
CC   sequence is derived from clone AL049825. The polypeptide is 26958.5
CC   daltons. PTMA polynucleotides and polypeptides are used in the
CC   manufacture of a medicament for treating a syndrome associated with a
CC   human disease, the disease selected from a pathology associated with
CC   PTMA. They may be useful in the treatment of various immune deficiencies
CC   and disorders. These immune deficiencies may be genetic or caused by
CC   viral as well as bacterial or fungal infections or may result from
CC   autoimmune disorders. Autoimmune disorders which may be treated using
CC   PTMA include, for example, connective tissue disease, multiple sclerosis,
CC   systemic lupus erythematosus, rheumatoid arthritis, autoimmune pulmonary
```

```
CC   inflammation, Guillian-Barre syndrome, autoimmune thyroiditis, insulin
CC   dependent diabetes mellitus, myasthenia gravis, graft-versus-host disease
CC   and autoimmune inflammatory eye disease. Additionally PTMA may also be
CC   useful to promote better or faster closure of non-healing wounds,
CC   including pressure ulcers, ulcers associated with vascular insufficiency,
CC   surgical and traumatic wounds. Furthermore, PTMA may also be useful for
CC   gut protection or regeneration and treatment of lung or liver fibrosis,
CC   reperfusion injury in various tissue, and conditions resulting from
CC   systemic cytokine damage.
XX
SQ   Sequence   241 AA;

  Query Match             99.1%;  Score 1266;  DB 22;  Length 241;
  Best Local Similarity   99.6%;  Pred. No. 3.8e-134;
  Matches  240;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 15
AAR37799
ID   AAR37799 standard; Protein; 307 AA.
XX
AC   AAR37799;
XX
DT   29-SEP-1993  (first entry)
XX
DE   Human NGF.
XX
KW   Chimeric; human; prepro; NGF; brain-derived neurotrophic factor;
KW   BDNF; chimera; fusion; mouse; nerve growth factor; peripheral;
KW   central; precursor; nervous system.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Region          1..187
FT                   /note= "Prepro region"
FT   Protein         188..307
FT                   /note= "Mature NGF"
XX
PN   WO9310150-A.
XX
PD   27-MAY-1993.
XX
PF   13-NOV-1992;   92WO-US09792.
XX
PR   14-NOV-1991;   91US-0792492.
XX
PA   (AMGE-) AMGEN.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Gies D,  Hu SS,  Ip N,  Squinto SP,  Yancopoulos GD;
XX
DR   WPI; 1993-182492/22.
DR   N-PSDB; AAQ42571.
XX
PT   Eukaryotic expression of neurotrophins - using prepro region of a
PT   different neurotrophin for more efficient post-translational
PT   processing
XX
PS   Disclosure; Fig 4; 80pp; English.
XX
CC   This sequence represents human nerve growth factor (NGF).  The protein
CC   encoded by this sequence promotes the development of the peripheral
CC   nervous system and also influences the development and maintenance of
CC   specific populations of neurons in the central nervous system.  Two
CC   major transcripts from the NGF gene result in a "long" and "short" NGF
CC   prepropeptide.  The "short" precursor contains a conventional signal
CC   sequence at the N-terminus which flanks the pro-region.  The "long"
CC   precursor contains an additional "pro-region" at its N-terminal.  No
CC   functional distinction has been elucidated between the "long" and
CC   "short" forms. Characteristics of NGF, such as isoelectric point and
CC   primary structure, are very similar to brain derived neurotrophic
CC   factor (BDNF).  The NGF coding sequence may be used in the
CC   construction of a chimeric nucleic acid molecule to encode a prepro-
CC   NGF/BDNF chimera (see also AAQ42568-69).
XX
SQ   Sequence   307 AA;

  Query Match             99.1%;  Score 1266;  DB 14;  Length 307;
  Best Local Similarity   99.6%;  Pred. No. 5.5e-134;
  Matches  240;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     67 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 126

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    127 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 186

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    187 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 246

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||:||||||||||||||||||||||||||||
Db    247 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTVDGKQAAWRFIRIDTACVCVLSRKAVRR 306

Qy    242 A 242
          |
Db    307 A 307


Search completed: December  2, 2002, 15:08:37
Job time : 50.2298 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 19.2919 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1270	99.5	286	1	NGHUBM	nerve growth facto
2	1124	88.0	229	2	I46614	nerve growth facto
3	1107	86.7	245	2	I56570	beta-nerve growth
4	1096	85.8	307	1	NGMSMG	nerve growth facto
5	1092	85.5	241	2	JL0097	nerve growth facto
6	1073	84.0	303	1	NGRTBA	nerve growth facto
7	788.5	61.7	243	2	A26311	nerve growth facto
8	773	60.5	235	2	S14481	nerve growth facto
9	675.5	52.9	243	2	I51193	nerve growth facto
10	658	51.5	125	2	A26312	nerve growth facto
11	649	50.8	246	2	A59218	nerve growth facto
12	484	37.9	117	2	S28161	nerve growth facto
13	481.5	37.7	194	2	I51709	nerve growth facto
14	481.5	37.7	257	2	C40304	neurotrophin-3 pre
15	472	37.0	258	2	S09155	neurotrophin-3 pre
16	471.5	36.9	257	2	I50400	neurotrophin-3 pre
17	471	36.9	282	2	A35781	hippocampus-derive
18	452.5	35.4	116	1	NGNJXI	nerve growth facto
19	448.5	35.1	116	2	A58566	nerve growth facto
20	426	33.4	286	2	S50855	neurotrophin-6 - s
21	365	28.6	247	2	A40304	brain-derived neur
22	364	28.5	249	2	B40304	brain-derived neur
23	360	28.2	249	2	S12555	brain-derived neur
24	358.5	28.1	252	2	A30361	brain-derived neur
25	348.5	27.3	248	2	JC6183	brain-derived neur
26	343	26.9	236	2	JH0400	neurotrophin-4 pre
27	337.5	26.4	210	2	A42687	neurotrophin-4 pre
28	335	26.2	269	2	I51708	brain-derived neur
29	330.5	25.9	209	2	B42687	neurotrophin-4 pre
30	323.5	25.3	114	2	I84765	brain-derived neur
31	316.5	24.8	114	2	I50606	brain-derived neur
32	307.5	24.1	114	2	I51599	brain-derived neur
33	84.5	6.6	5126	2	S40450	ryanodine receptor
34	83	6.5	397	2	S52783	aspartic proteinas
35	80	6.3	835	2	C97322	probable alpha-ara
36	79.5	6.2	749	2	E86774	hypothetical prote
37	79	6.2	807	2	A53225	ecdysone-induced p
38	79	6.2	1095	2	T24061	hypothetical prote
39	78.5	6.1	513	2	AI2555	hypothetical prote
40	78.5	6.1	701	2	T52384	hypothetical prote
41	78.5	6.1	742	2	T43520	condensin complex
42	78.5	6.1	1076	2	D82083	carbamoyl-phosphat
43	78.5	6.1	1084	2	B64088	hemoglobin-binding
44	78.5	6.1	1609	2	E87243	probable cation tr
45	78	6.1	323	2	S69647	hypothetical prote

ALIGNMENTS

RESULT 1
NGHUBM
nerve growth factor beta chain precursor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 19-Feb-1984 #sequence_revision 19-Feb-1984 #text_change 18-Jun-1999
C;Accession: A01399; S10253
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A01399
A;Molecule type: DNA
A;Residues: 1-286 <ULL>
R;Borsani, G.; Pizzuti, A.; Rugarli, E.I.; Falini, A.; Silani, V.; Sidoli, A.; Scarla
Nucleic Acids Res. 18, 4020, 1990
A;Title: cDNA sequence of human beta-NGF.
A;Reference number: S10253; MUID:90326556; PMID:2374737
A;Accession: S10253
A;Status: translation not shown
A;Molecule type: mRNA
A;Residues: 46-286 <BOR>
A;Cross-references: EMBL:X52599; NID:g29476; PIDN:CAA36832.1; PID:g29477
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: GDB:NGFB
A;Cross-references: GDB:120233; OMIM:162030
A;Map position: 1p13.1-1p13.1
A;Introns: 41/3
C;Complex: nerve growth factor is composed of two alpha chains, two beta chains, and
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; submandibular gland
F;1-166/Domain: signal sequence and propeptide (fragment) #status predicted <SIG>
F;167-284/Product: nerve growth factor beta chain #status predicted <MAT>
F;26,114,159,211/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;181-246,224-274,234-276/Disulfide bonds: #status predicted

Query Match 99.5%; Score 1270; DB 1; Length 286;
Best Local Similarity 100.0%; Pred. No. 6.2e-112;
Matches 241; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      46 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 105

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     106 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 165

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     166 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 225
```

```
Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    226 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 285

Qy    242 A 242
          |
Db    286 A 286
```

RESULT 2
I46614
nerve growth factor B - pig (fragment)
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 21-Feb-1997 #sequence_revision 21-Feb-1997 #text_change 16-Jul-1999
C;Accession: I46614
R;Lahbib-Mansais, Y.; Mellink, C.; Yerle, M.; Gellin, J.
Cytogenet. Cell Genet. 67, 120-125, 1994
A;Title: A new marker (NGFB) on pig chromosome 4, isolated by using consensus sequence c
A;Reference number: I46614; MUID:94313891; PMID:8039422
A;Accession: I46614
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-229 <LAH>
A;Cross-references: GB:L31898; NID:g476732; PIDN:AAA21301.1; PID:g533771
C;Genetics:
A;Gene: NGFB
C;Superfamily: nerve growth factor beta chain

```
  Query Match             88.0%;  Score 1124;  DB 2;  Length 229;
  Best Local Similarity   92.6%;  Pred. No. 2.7e-98;
  Matches  212;  Conservative    4;  Mismatches   13;  Indels    0;  Gaps    0;

Qy     14 LIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIAARVAGQTRNITV 73
          |||||||||:||||||| ||| |||||||||||||||| |||| | :|||||||||||||
Db      1 LIGIQAEPHTESNVPAGHAIPQAHWTKLQHSLDTALRRAHSAPAGANSARVAGQTRNITV 60

Qy     74 DPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGE 133
          ||:||||||||||||||||  |||||| | |  ||| ||||||||||||||:|||||
Db     61 DPKLFKKRRLRSPRVLFSTQPPPVAADTQDPDLEASGAASFNRTHRSKRSSSHPVFHRGE 120

Qy    134 FSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGI 193
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 FSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGI 180

Qy    194 DSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          |||||||||||||||||||||||||||||||||||||||||||||||| |||
Db    181 DSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRRA 229
```

RESULT 3
I56570
beta-nerve growth factor - rat (fragment)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C;Accession: I56570
R;Whittemore, S.R.; Friedman, P.L.; Larhammar, D.G.; Persson, H.; Gonzalez-Carvajal, M.;
J. Neurosci. Res. 20, 403-410, 1988
A;Title: Rat beta-nerve growth factor sequence and site of synthesis in the adult hippoc
A;Reference number: I56570; MUID:89037223; PMID:3184206
A;Accession: I56570
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-245 <RES>
A;Cross-references: GB:M36589; NID:g205691; PIDN:AAA41697.1; PID:g205692
C;Superfamily: nerve growth factor beta chain

```
  Query Match             86.7%;  Score 1107;  DB 2;  Length 245;
  Best Local Similarity   85.8%;  Pred. No. 1.2e-96;
  Matches  206;  Conservative   14;  Mismatches   20;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||:||||:::|||| | ::|: ||||||||||||||||||||  ||
Db      5 MSMLFYTLITAFLIGVQAEPYTDSNVPEGDSVPEAHWTKLQHSLDTALRRARSAPAEPIA 64

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||| |||||||||:|||||||||||||||||||  ::|| |||||:  |   ||||||||
Db     65 ARVTGQTRNITVDPKLFKKRRLRSPRVLFSTQPPPTSSDTLDLDFQAHGTISFNRTHRSK 124

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||:||:|| |||||||||||||||||||||||| ||||||||||||||||||||||||||
Db    125 RSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCR 184

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||:|||||||||||||||||||||||| | ||||||||||||||||||| ||
Db    185 APNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARR 244
```

RESULT 4
NGMSMG
nerve growth factor beta chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Nov-1980 #sequence_revision 19-Feb-1984 #text_change 21-Jul-2000
C;Accession: A93301; A93305; A90366; I49689; I52891; A01400; I49690
R;Scott, J.; Selby, M.; Urdea, M.; Quiroga, M.; Bell, G.I.; Rutter, W.J.
Nature 302, 538-540, 1983
A;Title: Isolation and nucleotide sequence of a cDNA encoding the precursor of mouse
A;Reference number: A93301; MUID:83167518; PMID:6336309
A;Accession: A93301
A;Molecule type: mRNA
A;Residues: 1-307 <SCO>
A;Cross-references: GB:V00836; NID:g53364; PIDN:CAA24221.1; PID:g53365
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A93305
A;Molecule type: mRNA
A;Residues: 1-307 <ULL>
A;Cross-references: GB:K01759; NID:g200051; PIDN:AAA39820.1; PID:g387495
A;Note: these authors believe that Met-67 is probably the amino-terminal residue and
R;Angeletti, R.H.; Hermodson, M.A.; Bradshaw, R.A.
Biochemistry 12, 100-115, 1973
A;Title: Amino acid sequences of mouse 2.5S nerve growth factor. II. Isolation and ch
A;Reference number: A90366; MUID:73075048; PMID:4566923
A;Accession: A90366
A;Molecule type: protein
A;Residues: 188-216,'N',218-305 <ANG>
R;Selby, M.J.; Edwards, R.; Sharp, F.; Rutter, W.J.
Mol. Cell. Biol. 7, 3057-3064, 1987
A;Title: Mouse nerve growth factor gene: Structure and expression.
A;Reference number: I49689; MUID:88038855; PMID:3670305
A;Accession: I49689
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-307 <RES>
A;Cross-references: GB:M17298; NID:g193493; PIDN:AAA37687.1; PID:g467311
R;Ullrich, A.; Gray, A.; Berman, C.H.; Coussens, L.; Dull, T.J.
Cold Spring Harb. Symp. Quant. Biol. 48, 435-442, 1983
A;Title: Sequence homology of human and mouse beta-NGF subunit genes.
A;Reference number: I52891; MUID:84206565; PMID:6327169
A;Accession: I52891
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-307 <RE3>
A;Cross-references: GB:M14805; NID:g200053; PIDN:AAA39821.1; PID:g200054
C;Comment: The active molecule is a dimer of identical chains associated by noncovale
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: NGFB
A;Introns: 21/2; 62/3
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer
F;1-187/Domain: signal sequence and propeptide #status predicted <SIG>
F;188-305/Product: nerve growth factor beta chain #status experimental <MAT>

```
F;135,180/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;202-267,245-295,255-297/Disulfide bonds: #status experimental
F;232/Binding site: carbohydrate (Asn) (covalent) #status absent

  Query Match             85.8%;  Score 1096;  DB 1;  Length 307;
  Best Local Similarity   85.0%;  Pred. No. 1.7e-95;
  Matches  204;  Conservative   14;  Mismatches   22;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
Db      67 MSMLFYTLITAFLIGVQAEPYTDSNVPEGDSVPEAHWTKLQHSLDTALRRARSAPTAPIA 126

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
Db     127 ARVTGQTRNITVDPRLFKKRRLHSPRVLFSTQPPPTSSDTLDLDFQAHGTIPFNRTHRSK 186

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
Db     187 RSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 246

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
Db     247 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 306


RESULT 5
JL0097
nerve growth factor beta chain precursor - guinea pig
C;Species: Cavia porcellus (guinea pig)
C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 15-Mar-1996
C;Accession: JL0097
R;Schwarz, M.A.; Fisher, D.; Bradshaw, R.A.; Isackson, P.J.
J. Neurochem. 52, 1203-1209, 1989
A;Title: Isolation and sequence of a cDNA clone of beta-nerve growth factor from the gui
A;Reference number: JL0097; MUID:89177243; PMID:2926397
A;Accession: JL0097
A;Molecule type: mRNA
A;Residues: 1-241 <SCH>
A;Note: the authors translated the codon GCU for residue 214 as Asp
C;Genetics:
A;Gene: Beta-NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; hormone
F;1-121/Domain: propeptide #status predicted <PRO>
F;122-241/Product: nerve growth factor beta chain #status predicted <MAT>
F;146-154/Region: receptor binding #status predicted
F;69,114/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             85.5%;  Score 1092;  DB 2;  Length 241;
  Best Local Similarity   86.2%;  Pred. No. 2.9e-95;
  Matches  207;  Conservative   10;  Mismatches   23;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
Db       1 MSMLFYTLITVFLIGIQAEPYSDSNVLSGDTIPQAHWTKLQHSLDTALRRAHSAPAAPIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
Db      61 ARVAGQTLNITVDPRLFKKRRLHSPRVLFSTQPPPLSTDAQDLDFEVDGAASVNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
Db     121 RSSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
Db     181 DPSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARR 240


RESULT 6
NGRTBA
nerve growth factor beta chain precursor - multimammate rat (Mastomys natalensis)
C;Species: Mastomys natalensis
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 18-Jun-1999
C;Accession: JT0343
R;Fahnestock, M.; Bell, R.A.
Gene 69, 257-264, 1988
A;Title: Molecular cloning of a cDNA encoding the nerve growth factor precursor from
A;Reference number: JT0343; MUID:89172070; PMID:3234767
A;Accession: JT0343
A;Molecule type: mRNA
A;Residues: 1-303 <FAH>
A;Cross-references: GB:M22748; NID:g202514; PIDN:AAA40599.1; PID:g202515
A;Note: it is uncertain whether Met-1 or Met-63 is the initiator
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer; submaxillary gland
F;184-301/Product: nerve growth factor beta chain #status predicted <MAT>
F;131,176,228/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;198-263,241-291,251-293/Disulfide bonds: #status predicted

  Query Match             84.0%;  Score 1073;  DB 1;  Length 303;
  Best Local Similarity   83.3%;  Pred. No. 2.4e-93;
  Matches  200;  Conservative   17;  Mismatches   23;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
Db      63 MSMLFYTLITALLIGVQAEPYTDSNLPEGDSVPEAHWTKLQHSLDTALRRARSAPAAPIA 122

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
Db     123 ARVTGQTRNITVDPRLFKKRKLRSPRVLFSTQPPPTSSDTLDLDFQAHGTISFNRTHRSK 182

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
Db     183 RSSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCR 242

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
Db     243 ARNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRR 302


RESULT 7
A26311
nerve growth factor beta chain precursor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 21-Jul-2000
C;Accession: A26311; A24857; S00127; S12532
R;Ebendal, T.; Larhammar, D.; Persson, H.
EMBO J. 5, 1483-1487, 1986
A;Title: Structure and expression of the chicken beta nerve growth factor gene.
A;Reference number: A26311; MUID:86300646; PMID:3017695
A;Accession: A26311
A;Molecule type: mRNA
A;Residues: 1-243 <EBE>
A;Cross-references: GB:X04003; NID:g63697; PIDN:CAA27633.1; PID:g1334740
R;Wion, D.; Perret, C.; Frechin, N.; Keller, A.; Behar, G.; Brachet, P.; Auffray, C.
FEBS Lett. 203, 82-86, 1986
A;Title: Molecular cloning of the avian beta-nerve growth factor gene: transcription
A;Reference number: A24857; MUID:86248129; PMID:3720959
A;Accession: A24857
A;Molecule type: DNA
A;Residues: 118-243 <WIO>
A;Cross-references: GB:D00010; GB:N00010; GB:X04067; NID:g222840; PIDN:BAA00008.1; PI
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: S00127
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 121-243 <MEI>
A;Cross-references: GB:M26810; NID:g212446; PIDN:AAA48984.1; PID:g212447
R;Ibanez, C.F.; Hallboeoek, F.; Ebendal, T.; Persson, H.
EMBO J. 9, 1477-1483, 1990
A;Title: Structure-function studies of nerve growth factor: functional importance of
A;Reference number: S12532; MUID:90228346; PMID:2328722
```

```
A;Accession: S12532
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 126-243 <IBA>
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor
F;1-125/Domain: signal sequence #status predicted <SIG>
F;126-243/Product: nerve growth factor beta chain #status predicted <MAT>

  Query Match             61.7%;  Score 788.5;  DB 2;  Length 243;
  Best Local Similarity   64.9%;  Pred. No. 1.1e-66;
  Matches  161;  Conservative   20;  Mismatches   48;  Indels   19;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESN----VPAGHTIPQVHWTKLQHSLDTALRRARSAPA 57
           ||||:|||| ||||| || | || |     || |::|    :  ||        |::||
Db       5 MSMLYYTLIIAFLIGTQAAPKSEDNGPLEYPAEHSLPSTQQSNGQHI-------AKAAPQ 57

Qy      58 AAIAARVA-----GQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAA 112
             | |       :  || :|   |||:| || |||||||||  :   |   | :  |
Db      58 TT-HGRFAWMPDGTEDLNIAMDQNFFKKKRFRSSRVLFSTQPPPVSRKGQSTGF-LSSAV 115

Qy     113 PFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFK 172
           ||| |:|| ::||: ||||||||||||:|||||||||||||| |||||||||:|||
Db     116 SLNRTARTKR-TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFK 174

Qy     173 QYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVC 232
           |||||||||| || |||||||:|||||||||||||||||||:|||||||||||||||||
Db     175 QYFFETKCRDPRPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVC 234

Qy     233 VLSRKAVR 240
           |||||: |
Db     235 VLSRKSGR 242


RESULT 8
S14481
nerve growth factor beta chain precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 16-Jul-1999
C;Accession: S14481
R;Carriero, F.; Campioni, M.; Cardinali, B.; Pierandrei-Amaldi, P.
submitted to the EMBL Data Library, October 1990
A;Description: Structure and expression of the nerve growth gene in Xenopus oocyte and e
A;Reference number: S14481
A;Accession: S14481
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-235 <CAR>
A;Cross-references: EMBL:X55716; NID:g64914; PIDN:CAA39249.1; PID:g64915
C;Superfamily: nerve growth factor beta chain

  Query Match             60.5%;  Score 773;  DB 2;  Length 235;
  Best Local Similarity   63.6%;  Pred. No. 3.2e-65;
  Matches  154;  Conservative   27;  Mismatches   41;  Indels   20;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHT----IP-QVHWTK-LQHSLDTALRRARSA 55
           ||||:|||: | || :|| | :: : ||  :    ||   | || | ||
Db       5 MSMLYYTLLIAILISVQAAPKTKDHAPARSSAKSRIPHHTHRTKSLHHS---------- 53

Qy      56 PAAAIAARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFN 115
             : |:     ||:||||:||:||: ||||||||||  : | | |:: :      |
Db      54 -HGKLEAKEPSYFRNVTVDPKLFRKRKFRSPRVLFSTQPPPLSEDFQHLEY-LDDEESLN 111

Qy     116 RTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYF 175
           :| |:|| : ||: |:||:||||||:|||:|| |||||||| ||||||||||||||||
Db     112 KTIRAKR-TVHPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYF 170

Qy     176 FETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLS 235
           |||||||| || |||||||:|||||||||||||||||||:|||||||||||||||||||||
Db     171 FETKCRDPKPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLS 230

Qy     236 RK 237
           ||
Db     231 RK 232


RESULT 9
I51193
nerve growth factor precursor - many-banded krait
C;Species: Bungarus multicinctus (many-banded krait)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51193
R;Danse, J.M.; Garnier, J.M.
Growth Factors 8, 77-86, 1993
A;Title: Molecular cloning of a cDNA encoding a nerve growth factor precursor from th
A;Reference number: I51193; MUID:93192074; PMID:7916740
A;Accession: I51193
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-243 <DAN>
A;Cross-references: GB:S56212; NID:g266298; PIDN:AAB25729.1; PID:g266299
C;Superfamily: nerve growth factor beta chain

  Query Match             52.9%;  Score 675.5;  DB 2;  Length 243;
  Best Local Similarity   56.8%;  Pred. No. 5.1e-56;
  Matches  137;  Conservative   30;  Mismatches   67;  Indels    7;  Gaps    4;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAG----HTIPQVHWTKLQHSLDTALRRARSAPA 57
           |||| |||| |||||| | | || ||| |          :  :    | |:    :  |
Db       1 MSMLCYTLIIAFLIGIWAAPKSEDNVPLGSPAKSDFSDTNCAQTHEGLKTSRNTDQHHPT 60

Qy      58 AAIAA-RVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNR 116
             :  :  |   || |||:||:||| :||||||||||  : | | : | :      ||
Db      61 PKKSEDQELGSAANIIVDPKLFQKRRFQSPRVLFSTQPPPLSRDEQSVKF-LDTEDTLNR 119

Qy     117 THRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFF 176
             :  : :||: ::|| |||||:|||| :|| ||||||  | |: :||:|| |:|||||
Db     120 NIWA-NNENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFF 178

Qy     177 ETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSR 236
           |||||:|||| ||||||||:|||||||| ||||||||:| :|:|||||||||||||:||
Db     179 ETKCRNPNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISR 238

Qy     237 K 237
           |
Db     239 K 239


RESULT 10
A26312
nerve growth factor beta chain precursor - bovine (fragment)
C;Species: Bos primigenius taurus (cattle)
C;Date: 19-Nov-1988 #sequence_revision 19-Nov-1988 #text_change 16-Jul-1999
C;Accession: A26312
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: A26312
A;Molecule type: mRNA
A;Residues: 1-125 <MEI>
A;Cross-references: GB:M26809; NID:g163419; PIDN:AAA30666.1; PID:g163420
C;Comment: Nerve growth factor stimulates neurite outgrowth from sympathetic and embr
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; seminal vesicle
F;6-125/Product: nerve growth factor #status predicted <MAT>
F;20-85,63-113,73-115/Disulfide bonds: #status predicted

  Query Match             51.5%;  Score 658;  DB 2;  Length 125;
  Best Local Similarity   95.2%;  Pred. No. 9.9e-55;
  Matches  119;  Conservative    4;  Mismatches    2;  Indels    0;  Gaps    0;

Qy     118 HRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFE 177
           ||||||||||:||||||||||:|||||||||||||||||||||||||||||||||||||
Db       1 HRSKRSSSHPVFHRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFE 60
```

```
Qy    178 TKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 237
          ||||||||||||||||:||||||||||||||||||||||||||||||||||||||||||||
Db     61 TKCRDPNPVDSGCRGIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 120

Qy    238 AVRRA 242
           :||
Db    121 TGQRA 125


RESULT 11
A59218
nerve growth factor beta chain precursor - monocled cobra
C;Species: Naja naja kaouthia, Naja naja siamensis (monocled cobra)
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 31-Mar-2000
C;Accession: A59218; S13965
R;Selby, M.J.; Edwards, R.H.; Rutter, W.J.
J. Neurosci. Res. 18, 293-298, 1987
A;Title: Cobra nerve growth factor: structure and evolutionary comparison.
A;Reference number: A59218; MUID:88090976; PMID:3694712
A;Accession: A59218
A;Molecule type: mRNA
A;Residues: 1-246 <SEL>
R;Inoue, S.; Oda, T.; Koyama, J.; Ikeda, K.; Hayashi, K.
FEBS Lett. 279, 38-40, 1991
A;Title: Amino acid sequences of nerve growth factors derived from cobra venoms.
A;Reference number: S13927; MUID:91138755; PMID:1995338
A;Accession: S13965
A;Molecule type: protein
A;Residues: 131-246 <INO>
A;Experimental source: venom
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathetic
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;1-23/Domain: signal sequence #status predicted <SIG>
F;131-246/Product: nerve growth factor beta chain #status experimental <MAT>
F;144-208,186-236,196-238/Disulfide bonds: #status predicted

  Query Match             50.8%;  Score 649;  DB 2;  Length 246;
  Best Local Similarity   55.6%;  Pred. No. 1.6e-53;
  Matches  134;  Conservative   30;  Mismatches   69;  Indels    8;  Gaps    5;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAG----HTIPQVHWTKLQHSLDTALRRARSAPA 57
          |||| |||| |||||| | | || ||| |      :      :    | |:    :  ||
Db      6 MSMLCYTLIIAFLIGIWAAPKSEDNVPLGSPATSDLSDTSCAQTHEGLKTSRNTDQHHPA 65

Qy     58 AAIAARVAGQT-RNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNR 116
            |     :|  || |||:||:||: :||||||||||  : | : ::| :      ||
Db     66 PQKAEDQELRTAANIIVDPKLFQKRQFQSPRVLFSTQPPLLSRDEESVEF-LDNEDSLNR 124

Qy    117 THRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFF 176
            |:||   ||: : || ||||||| ||  |||||||||  | |:  ||::| |:|||||
Db    125 NIRAKR-EDHPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFF 182

Qy    177 ETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSR 236
          ||||::|||  |||||||| ||||||| | ||:|||||:| ||:|||||:|||||:::
Db    183 ETKCKNPNPEPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITK 242

Qy    237 K 237
           |
Db    243 K 243


RESULT 12
S28161
nerve growth factor beta chain - Russell's viper
C;Species: Vipera russelli (Russell's viper)
C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997 #text_change 31-Oct-1997
C;Accession: S28161
R;Koyama, J.; Inoue, S.; Ikeda, K.; Hayashi, K.
Biochim. Biophys. Acta 1160, 287-292, 1992
A;Title: Purification and amino-acid sequence of a nerve growth factor from the venom of
A;Reference number: S28161; MUID:93120151; PMID:1477101
A;Accession: S28161
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-117 <KOY>
C;Superfamily: nerve growth factor beta chain

  Query Match             37.9%;  Score 484;  DB 2;  Length 117;
  Best Local Similarity   74.1%;  Pred. No. 2.2e-38;
  Matches   83;  Conservative   19;  Mismatches   10;  Indels    0;  Gaps    0;

Qy    126 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNP 185
          ||: ::|||||||||||||| :||||||::|  | |: :||:||:|:|||||||||::|||
Db      1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy    186 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 237
          | |||||||:|||||||||| |||:||||:  ||:||||||:||||||:|||
Db     61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 13
I51709
nerve growth factor beta chain precursor - southern platyfish
C;Species: Xiphophorus maculatus (southern platyfish)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51709; S26674
R;Gotz, R.; Raulf, F.; Schartl, M.
J. Neurochem. 59, 432-442, 1992
A;Title: Brain-derived neurotrophic factor is more highly conserved in structure and
A;Reference number: I51708; MUID:92333301; PMID:1629719
A;Accession: I51709
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-194 <GOT>
A;Cross-references: EMBL:X59941; NID:g65277; PIDN:CAA42566.1; PID:g65278
C;Genetics:
A;Gene: NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor
F;1-14/Domain: signal sequence #status predicted <SIG>
F;15-79/Domain: propeptide #status predicted <PRO>
F;80-194/Product: nerve growth factor beta chain #status predicted <MAT>
F;90-155,133-183,143-185/Disulfide bonds: #status predicted
F;99/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             37.7%;  Score 481.5;  DB 2;  Length 194;
  Best Local Similarity   58.9%;  Pred. No. 7.2e-38;
  Matches   99;  Conservative   13;  Mismatches   39;  Indels   17;  Gaps    3;

Qy     72 TVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFE-VGGAAPFNRTHRSKRSSSHPIFH 130
          ||||:|| |||  |||||||:|||          | |  ||     || |  :       |
Db     40 TVDPKLFNKRRHLSPRVLFSSQPP---------DAEPAGGQGVSRRTRRQPQ-------H 83

Qy    131 RGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGC 190
          || :|||:|||||||:|| |||| |||| ||  |||||   ||||||| |  |     | |
Db     84 RGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSRC 143

Qy    191 RGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKA 238
           |||::||||:|| :||||:|||    | ||| |||: |||||||||:
Db    144 LGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191


RESULT 14
C40304
neurotrophin-3 precursor - human
N;Alternate names: nerve growth factor 2; NGF-2
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
C;Accession: A36208; JH0141; C40304; S10719; C60536
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: A36208
```

```
A;Molecule type: DNA
A;Residues: 1-257 <JON>
A;Cross-references: GB:M37763; NID:g189300; PIDN:AAA59953.1; PID:g189301
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Lewis, M.; Shih, A.; Laramee, G.R.; Nikolics
Neuron 4, 767-773, 1990
A;Title: Primary structure and biological activity of a novel human neurotrophic factor.
A;Reference number: JH0141; MUID:90262727; PMID:2344409
A;Accession: JH0141
A;Molecule type: DNA
A;Residues: 1-257 <ROS>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la Mo
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene struct
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: C40304
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M61180; NID:g189302; PIDN:AAA63231.1; PID:g189303
R;Kaisho, Y.; Yoshimura, K.; Nakahama, K.
FEBS Lett. 266, 187-191, 1990
A;Title: Cloning and expression of a cDNA encoding a novel human neurotrophic factor.
A;Reference number: S10719; MUID:90306351; PMID:2365067
A;Accession: S10719
A;Molecule type: mRNA
A;Residues: 1-257 <KAI>
A;Cross-references: GB:X53655; NID:g287794; PIDN:CAA37703.1; PID:g287795
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boulton
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways the
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: C60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-73,'Q',75-77,'R',79-108,'T',110-257 <YAN>
C;Genetics:
A;Gene: GDB:NTF3
A;Cross-references: GDB:125917; OMIM:162660
A;Map position: 12p13-12p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-138/Domain: propeptide #status predicted <PRO>
F;139-257/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             37.7%;  Score 481.5;  DB 2;  Length 257;
  Best Local Similarity   40.7%;  Pred. No. 1e-37;
  Matches  107;  Conservative   37;  Mismatches   88;  Indels   31;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQV--------------HWTKLQHSLD 46
           ||:||| :  |:| |||     : ::|       :                 :: :
Db       1 MSILFYVIFLAYLRGIQGNNMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDVKENYQ 60

Qy      47 TALRRA-------RSAPAAAIAARVAGQTRNITVDPRLFK-KRRLRSPRVLFSTQPPREA 98
           : | :|       |  || :    |      | :|  | : :||  ||||| |   | |
Db      61 STLPKAEAPREPERGGPAKSAFQPV------IAMDTELLRQQRRYNSPRVLLSDSTPLEP 114

Qy      99 ADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEV 158
             ::  ||     ||| | || : |   ||||:|||| |:|| ||::| ||:| :|
Db     115 PPLYLMEDYVGSPVVANRTSRRKRYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQV 173

Qy     159 MVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GK 217
           ||||:   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |
Db     174 TVLGEIKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNK 233

Qy     218 QAAWRFIRIDTACVCVLSRKAVR 240
             ||:|||||:||| ||||  |
Db     234 LVGWRWIRIDTSCVCALSRKIGR 256


RESULT 15
S09155
neurotrophin-3 precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 16-Jul-1999
C;Accession: S09155; S51179
R;Hohn, A.; Leibrock, J.; Bailey, K.; Barde, Y.A.
Nature 344, 339-341, 1990
A;Title: Identification and characterization of a novel member of the nerve growth fa
A;Reference number: S09155; MUID:90190865; PMID:2314473
A;Accession: S09155
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-258 <HOH>
A;Cross-references: GB:X53257; NID:g53451; PIDN:CAA37348.1; PID:g53452
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51179
A;Status: preliminary
A;Molecule type: protein
A;Residues: 140-152 <KOL>
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;140-258/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             37.0%;  Score 472;  DB 2;  Length 258;
  Best Local Similarity   41.9%;  Pred. No. 8e-37;
  Matches  108;  Conservative   33;  Mismatches   97;  Indels   20;  Gaps    5;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGH----TIPQVHWTKLQHSLDTAL-------- 49
           ||:||| :  |:| |||     : ::|       |  :    |:: |   :
Db       1 MSILFYVIFLAYLRGIQGNSMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDVKENYQ 60

Qy      50 -----RRARSAPAAAIAARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDL 104
                |   |    | |   |    |    | ::||  ||||| |   | |      :
Db      61 STLPKAEAPREPEQGEATRSEFQPMIATDTELLRQQRRYNSPRVLLSDSTPLEPPPLYLM 120

Qy     105 DFEVGGAAPFNRTH-RSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGE 163
           :  ||     |||  | || : |   ||||:||||| |:|| ||::| ||:| :| ||||
Db     121 EDYVGNPVVANRTSPRRKRYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGE 179

Qy     164 VNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWR 222
           :   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |   ||
Db     180 IKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWR 239

Qy     223 FIRIDTACVCVLSRKAVR 240
           :|||||:||| ||||  |
Db     240 WIRIDTSCVCALSRKIGR 257


Search completed: December  2, 2002, 15:13:57
Job time : 20.2919 secs
```

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 9.92966 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1270	99.5	241	1	NGF_HUMAN	P01138 homo sapien
2	1124	88.0	229	1	NGF_PIG	Q29074 sus scrofa
3	1107	86.7	241	1	NGF_RAT	P25427 rattus norv
4	1106	86.6	231	1	NGF_BOVIN	P13600 bos taurus
5	1096	85.8	241	1	NGF_MOUSE	P01139 mus musculu
6	1092	85.5	241	1	NGF_CAVPO	P19093 cavia porce
7	1073	84.0	241	1	NGF_PRANA	P20675 praomys nat
8	788.5	61.7	243	1	NGF_CHICK	P05200 gallus gall
9	773	60.5	231	1	NGF_XENLA	P21617 xenopus lae
10	675.5	52.9	243	1	NGF_BUNMU	P34128 bungarus mu
11	484	37.9	117	1	NGF_DABRR	P30894 daboia russ
12	481.5	37.7	194	1	NGF_XIPMA	P34129 xiphophorus
13	481.5	37.7	257	1	NT3_HUMAN	P20783 homo sapien
14	474	37.1	260	1	NT3_XENLA	P25435 xenopus lae
15	473.5	37.1	257	1	NT3_FELCA	Q9tst2 felis silve
16	472	37.0	258	1	NT3_MOUSE	P20181 mus musculu
17	471.5	36.9	257	1	NT3_CHICK	P25433 gallus gall
18	471	36.9	258	1	NT3_RAT	P18280 rattus norv
19	459.5	36.0	233	1	NT7_BRARE	O73797 brachydanio
20	449.5	35.2	116	1	NGF_NAJNA	P01140 naja naja (
21	445.5	34.9	116	1	NGF_NAJAT	P21377 naja atra (
22	372.5	29.2	140	1	NT7_CYPCA	O93474 cyprinus ca
23	365	28.6	247	1	BDNF_HUMAN	P23560 homo sapien
24	364	28.5	249	1	BDNF_RAT	P23363 rattus norv
25	363	28.4	255	1	BDNF_CAVPO	O70183 cavia porce
26	362	28.3	247	1	BDNF_PROLO	O18755 procyon lot
27	361	28.3	247	1	BDNF_URSAR	O18752 ursus arcto
28	361	28.3	247	1	BDNF_URSML	O18753 ursus malay
29	360	28.2	249	1	BDNF_MOUSE	P21237 mus musculu
30	358.5	28.1	252	1	BDNF_PIG	P14082 sus scrofa
31	350	27.4	247	1	BDNF_FELCA	Q9tst3 felis silve
32	348.5	27.3	248	1	BDNF_BOVIN	Q95106 bos taurus
33	347.5	27.2	246	1	BDNF_CHICK	P25429 gallus gall
34	343	26.9	236	1	NT4_XENLA	P24727 xenopus lae
35	338.5	26.5	270	1	BDNF_CYPCA	Q90322 cyprinus ca
36	337.5	26.4	210	1	NT5_HUMAN	P34130 homo sapien
37	335	26.2	269	1	BDNF_XIPMA	Q02193 xiphophorus
38	330.5	25.9	209	1	NT5_RAT	P34131 rattus norv
39	323.5	25.3	114	1	BDNF_MACMU	Q06225 macaca mula
40	307.5	24.1	114	1	BDNF_XENLA	P25432 xenopus lae
41	230	18.0	257	1	NT6B_HUMAN	P34133 homo sapien
42	227	17.8	257	1	NT6A_HUMAN	P34132 homo sapien
43	225	17.6	186	1	NT6G_HUMAN	P34134 homo sapien
44	190	14.9	42	1	NGF_VIPLE	P25428 vipera lebe
45	136	10.6	154	1	NT3_CEREL	Q95150 cervus elap

ALIGNMENTS

RESULT 1
NGF_HUMAN
ID NGF_HUMAN STANDARD; PRT; 241 AA.
AC P01138;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Beta-nerve growth factor precursor (Beta-NGF).
GN NGFB.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83244969; PubMed=6688123;
RA Ullrich A., Gray A., Berman C., Dull T.J.;
RT "Human beta-nerve growth factor gene sequence highly homologous to
RT that of mouse.";
RL Nature 303:821-825(1983).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=84206565; PubMed=6327169;
RA Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT "Sequence homology of human and mouse beta-NGF subunit genes.";
RL Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN [3]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=90326556; PubMed=2374737;
RA Borsani G., Pizzuti A., Rugarli E.I., Falini A., Silani V.,
RA Sidoli A., Scarlato G., Barelle F.E.;
RT "cDNA sequence of human beta-NGF.";
RL Nucleic Acids Res. 18:4020-4020(1990).
RN [4]
RP SEQUENCE OF 178-219 FROM N.A.
RC TISSUE=Leukocyte;
RX MEDLINE=91222573; PubMed=2025430;
RA Hallboeoek F., Ibanez C.F., Persson H.;
RT "Evolutionary studies of the nerve growth factor family reveal a
RT novel member abundantly expressed in Xenopus ovary.";
RL Neuron 6:845-858(1991).
CC -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC EMBRYONIC SENSORY NEURONS.
CC -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC ---

```
CC   ---------------------------------------------------------------------
DR   EMBL; V01511; CAA24755.1; -.
DR   EMBL; M21062; AAA59931.1; -.
DR   EMBL; X52599; CAA36832.1; -.
DR   PIR; A01399; NGHUBM.
DR   PIR; S10253; S10253.
DR   HSSP; P01139; 1BET.
DR   Genew; HGNC:7808; NGFB.
DR   MIM; 162030; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26987 MW;  CF1DB4DC6B736B0F CRC64;

  Query Match             99.5%;  Score 1270;  DB 1;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 3e-113;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 2
NGF_PIG
ID   NGF_PIG        STANDARD;      PRT;   229 AA.
AC   Q29074;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Large white; TISSUE=Blood;
RX   MEDLINE=94313891; PubMed=8039422;
RA   Lahbib-Mansais Y., Mellink C., Yerle M., Gellin J.;
RT   "A new marker (NGFB) on pig chromosome 4, isolated by using a
RT   consensus sequence conserved among species.";
RL   Cytogenet. Cell Genet. 67:120-125(1994).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L31898; AAA21301.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER       1      1
FT   SIGNAL       <1      6       POTENTIAL.
FT   PROPEP        7    109       BY SIMILARITY.
FT   CHAIN       110    229       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    124    189       BY SIMILARITY.
FT   DISULFID    167    217       BY SIMILARITY.
FT   DISULFID    177    219       BY SIMILARITY.
FT   CARBOHYD     57     57       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    102    102       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    154    154       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   229 AA;  25275 MW;  FE8890771CBA3189 CRC64;

  Query Match             88.0%;  Score 1124;  DB 1;  Length 229;
  Best Local Similarity   92.6%;  Pred. No. 2e-99;
  Matches  212;  Conservative    4;  Mismatches   13;  Indels    0;  Gaps    0;

Qy     14 LIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIAARVAGQTRNITV 73
          |||||||||:||||||| ||| ||||||||||||||| |||| | :||||||||||||
Db      1 LIGIQAEPHTESNVPAGHAIPQAHWTKLQHSLDTALRRAHSAPAGANSARVAGQTRNITV 60

Qy     74 DPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGE 133
          ||:|||||||||||||||  |||||| | |  ||| ||||||||||||:|||||
Db     61 DPKLFKKRRLRSPRVLFSTQPPPVAADTQDPDLEASGAASFNRTHRSKRSSSHPVFHRGE 120

Qy    134 FSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGI 193
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 FSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGI 180

Qy    194 DSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          |||||||||||||||||||||||||||||||||||||||||||||| |||
Db    181 DSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRRA 229


RESULT 3
NGF_RAT
ID   NGF_RAT        STANDARD;      PRT;   241 AA.
AC   P25427;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89037223; PubMed=3184206;
```

```
RA   Whittemore S.R., Friedman P.L., Larhammar D.G., Persson H.,
RA   Gonzalez-Carvajal M., Holets V.R.;
RT   "Rat beta-nerve growth factor sequence and site of synthesis in the
RT   adult hippocampus.";
RL   J. Neurosci. Res. 20:403-410(1988).
RN   [2]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M36589; AAA41697.1; ALT_INIT.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121       POTENTIAL.
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27009 MW;  665F42371563213D CRC64;

  Query Match             86.7%;  Score 1107;  DB 1;  Length 241;
  Best Local Similarity   85.8%;  Pred. No. 8.7e-98;
  Matches  206;  Conservative   14;  Mismatches   20;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           |||||||||||||||:||||:::|||| | ::|: |||||||||||||||||||  ||
Db       1 MSMLFYTLITAFLIGVQAEPYTDSNVPEGDSVPEAHWTKLQHSLDTALRRARSAPAEPIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           ||| |||||||||||:|||||||||||||||||  ::|| ||||:  |   ||||||||
Db      61 ARVTGQTRNITVDPKLFKKRRLRSPRVLFSTQPPPTSSDTLDLDFQAHGTISFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           |||:||:|| |||||||||||||||||||||||| ||||||||||||||||||||
Db     121 RSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
            ||||:|||||||||||||||||||||| | ||||||||||||||||||| ||
Db     181 APNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARR 240


RESULT 4
NGF_BOVIN
ID   NGF_BOVIN      STANDARD;      PRT;   231 AA.
AC   P13600; O18969;
DT   01-JAN-1990 (Rel. 13, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RX   MEDLINE=97430845; PubMed=9284944;
RA   Elduque C., Laurent P., Hayes H., Rodellar C., Leveziel H.,
RA   Zaragoza P.;
RT   "Assignment of the beta-nerve growth factor (NGFB) to bovine
RT   chromosome 3 band q23 by in situ hybridization.";
RL   Cytogenet. Cell Genet. 77:306-307(1997).
RN   [2]
RP   SEQUENCE OF 107-231 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y09566; CAA70759.1; -.
DR   EMBL; M26809; AAA30666.1; -.
DR   PIR; A26312; A26312.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER      1      1
FT   SIGNAL      <1      8       POTENTIAL.
FT   PROPEP       9    111       BY SIMILARITY.
FT   CHAIN      112    231       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   126    191       BY SIMILARITY.
FT   DISULFID   169    219       BY SIMILARITY.
FT   DISULFID   179    221       BY SIMILARITY.
FT   CARBOHYD   156    156       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT   118    118       L -> F (IN REF. 2).
FT   CONFLICT   161    161       R -> K (IN REF. 2).
FT   CONFLICT   230    231       AP -> RA (IN REF. 2).
SQ   SEQUENCE   231 AA;  25437 MW;  01605099291A418C CRC64;

  Query Match             86.6%;  Score 1106;  DB 1;  Length 231;
  Best Local Similarity   90.7%;  Pred. No. 1e-97;
  Matches  205;  Conservative    7;  Mismatches   14;  Indels    0;  Gaps    0;

Qy      12 AFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIAARVAGQTRNI 71
           |||||||| ||:||||||| ||| || |||||||| |||| ||||  ||||||||| ||
```

```
Db      1 AFLIGIQAAPHTESNVPAGHAIPQAHWIKLQHSLDTVLRRAHSAPAGPIAARVAGQTHNI 60

Qy     72 TVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHR 131
          ||||:||||||||||||||||  |||||||||| |||: |||||||||||||: ||
Db     61 TVDPKLFKKRRLRSPRVLFSTQPPPVAADTQDLDFEAGGASSFNRTHRSKRSSSHPVLHR 120

Qy    132 GEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCR 191
          ||||||||:||||||||||||||||||||||||||||:||||||||||||||||||||
Db    121 GEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSGCR 180

Qy    192 GIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 237
          |||:|||||||||||||||||||||||||||||||||||||||||||
Db    181 GIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 226


RESULT 5
NGF_MOUSE
ID   NGF_MOUSE      STANDARD;      PRT;   241 AA.
AC   P01139; Q63864;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-JAN-1990 (Rel. 13, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167518; PubMed=6336309;
RA   Scott J., Selby M.J., Urdea M.S., Quiroga M., Bell G.I., Rutter W.J.;
RT   "Isolation and nucleotide sequence of a cDNA encoding the precursor
RT   of mouse nerve growth factor.";
RL   Nature 302:538-540(1983).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83244969; PubMed=6688123;
RA   Ullrich A., Gray A., Berman C., Dull T.J.;
RT   "Human beta-nerve growth factor gene sequence highly homologous to
RT   that of mouse.";
RL   Nature 303:821-825(1983).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=84206565; PubMed=6327169;
RA   Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT   "Sequence homology of human and mouse beta-NGF subunit genes.";
RL   Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6; TISSUE=Submaxillary gland;
RX   MEDLINE=88038855; PubMed=3670305;
RA   Selby M.J., Edwards R., Sharp F., Rutter W.J.;
RT   "Mouse nerve growth factor gene: structure and expression.";
RL   Mol. Cell. Biol. 7:3057-3064(1987).
RN   [5]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93264918; PubMed=1284621;
RA   Yamamoto T., Yamakuni T., Okabe N., Amano T.;
RT   "Production and secretion of nerve growth factor by clonal striated
RT   muscle cell line, G8-1.";
RL   Neurochem. Int. 21:251-258(1992).
RN   [6]
RP   SEQUENCE OF 122-239.
RX   MEDLINE=73075048; PubMed=4566923;
RA   Angeletti R.H., Hermodson M.A., Bradshaw R.A.;
RT   "Amino acid sequences of mouse 2.5S nerve growth factor. II.
RT   Isolation and characterization of the thermolytic and peptic peptides
RT   and the complete covalent structure.";
RL   Biochemistry 12:100-115(1973).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=92065986; PubMed=1956407;
RA   McDonald N.Q., Lapatto R., Murray-Rust J., Gunning J., Wlodawer A.,
RA   Blundell T.L.;
RT   "New protein fold revealed by a 2.3-A resolution crystal structure of
RT   nerve growth factor.";
RL   Nature 354:411-414(1991).
RN   [8]
RP   X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
RX   MEDLINE=94260545; PubMed=8201620;
RA   Holland D.R., Cousens L.S., Meng W., Matthews B.W.;
RT   "Nerve growth factor in different crystal forms displays structural
RT   flexibility and reveals zinc binding sites.";
RL   J. Mol. Biol. 239:385-400(1994).
RN   [9]
RP   X-RAY CRYSTALLOGRAPHY (3.15 ANGSTROMS) OF 7S COMPLEX.
RC   STRAIN=Swiss Webster; TISSUE=Submaxillary gland;
RX   MEDLINE=98035451; PubMed=9351801;
RA   Bax B., Blundell T.L., Murray-Rust J., McDonald N.Q.;
RT   "Structure of mouse 7S NGF: a complex of nerve growth factor with
RT   four binding proteins.";
RL   Structure 5:1275-1285(1997).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; M35075; AAA39818.1; ALT_INIT.
DR   EMBL; V00836; CAA24221.1; ALT_INIT.
DR   EMBL; K01759; AAA39820.1; ALT_INIT.
DR   EMBL; M14805; AAA39821.1; ALT_INIT.
DR   EMBL; M17298; AAA37687.1; ALT_INIT.
DR   EMBL; M17296; AAA37687.1; JOINED.
DR   EMBL; M17297; AAA37687.1; JOINED.
DR   EMBL; S62089; CAB32081.2; ALT_SEQ.
DR   PIR; A01400; NGMSMG.
DR   PDB; 1BET; 31-MAY-94.
DR   PDB; 1BTG; 08-MAR-96.
DR   PDB; 1SGF; 27-MAY-98.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; 3D-structure.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201
FT   DISULFID   179    229
FT   DISULFID   189    231
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT   233    241       LSRKATRRG -> CSAGRLQEEA (IN REF. 5).
SQ   SEQUENCE   241 AA;  27076 MW;  164465E1DC550081 CRC64;

  Query Match             85.8%;  Score 1096;  DB 1;  Length 241;
  Best Local Similarity   85.0%;  Pred. No. 9.6e-97;
  Matches  204;  Conservative   14;  Mismatches   22;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||:||||:::|||| | ::|: ||||||||||||||||||| | ||
```

```
Db      1 MSMLFYTLITAFLIGVQAEPYTDSNVPEGDSVPEAHWTKLQHSLDTALRRARSAPTAPIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||| |||||||||||||||||| |||||||||||  ::|| ||||:  |  |||||||||
Db     61 ARVTGQTRNITVDPRLFKKRRLHSPRVLFSTQPPPTSSDTLDLDFQAHGTIPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||:||:|| |||||||||||||||||||||||||| || ||||||||:|||||||||
Db    121 RSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
            |||:||||||||||||||||||||||||| | ||||||||||||||||||||| ||
Db    181 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 240


RESULT 6
NGF_CAVPO
ID   NGF_CAVPO      STANDARD;      PRT;   241 AA.
AC   P19093;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Prostate;
RX   MEDLINE=89177243; PubMed=2926397;
RA   Schwarz M.A., Fisher D., Bradshaw R.A., Isackson P.J.;
RT   "Isolation and sequence of a cDNA clone of beta-nerve growth factor
RT   from the guinea pig prostate gland.";
RL   J. Neurochem. 52:1203-1209(1989).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; JL0097; JL0097.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26821 MW;  2F4E26B197804BF4 CRC64;

  Query Match             85.5%;  Score 1092;  DB 1;  Length 241;
  Best Local Similarity   86.2%;  Pred. No. 2.3e-96;
  Matches  207;  Conservative   10;  Mismatches   23;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||| |||||||||:|:||| :| |||| |||||||||||||||| ||||| ||
Db      1 MSMLFYTLITVFLIGIQAEPYSDSNVLSGDTIPQAHWTKLQHSLDTALRRAHSAPAAPIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||| |||||||||||||| |||||||||||  : | ||||||| |||  |||||||
Db     61 ARVAGQTLNITVDPRLFKKRRLHSPRVLFSTQPPPLSTDAQDLDFEVDGAASVNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||:||:|| |||||||||||||||||||||||||| || ||||||||:|||||||||
Db    121 RSSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||:|||||||||||||||||||||||||||||||   |||||||||||||||:||| ||
Db    181 DPSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARR 240


RESULT 7
NGF_PRANA
ID   NGF_PRANA      STANDARD;      PRT;   241 AA.
AC   P20675;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Praomys natalensis (African soft-furred rat) (Mastomys natalensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC   Mastomys.
OX   NCBI_TaxID=10112;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89172070; PubMed=3234767;
RA   Fahnestock M., Bell R.A.;
RT   "Molecular cloning of a cDNA encoding the nerve growth factor
RT   precursor from Mastomys natalensis.";
RL   Gene 69:257-264(1988).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; M22748; AAA40599.1; ALT_INIT.
DR   PIR; JT0343; NGRTBA.
DR   HSSP; P01139; 1BTG.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27035 MW;  8BFBB207A1FFB2F7 CRC64;

  Query Match             84.0%;  Score 1073;  DB 1;  Length 241;
  Best Local Similarity   83.3%;  Pred. No. 1.5e-94;
  Matches  200;  Conservative   17;  Mismatches   23;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
```

```
          |||||||||||  |||:||||:::||:| | ::|: ||||||||||||||||||||||  ||
Db        1 MSMLFYTLITALLIGVQAEPYTDSNLPEGDSVPEAHWTKLQHSLDTALRRARSAPAAPIA 60

Qy       62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
            |||  ||||||||||||||||:||||||||||||  ::|| ||||:  |   ||||||||
Db       61 ARVTGQTRNITVDPRLFKKRKLRSPRVLFSTQPPPTSSDTLDLDFQAHGTISFNRTHRSK 120

Qy      122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
            |||:||:|  ||||||||||||||||||||||| || ||||||||||||||||||||||
Db      121 RSSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCR 180

Qy      182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
              |||:|||||||||||||||||||||||| | :|||||||||||||||:||| ||
Db      181 ARNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRR 240
```

RESULT 8
NGF_CHICK
ID NGF_CHICK STANDARD; PRT; 243 AA.
AC P05200;
DT 13-AUG-1987 (Rel. 05, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Beta-nerve growth factor precursor (Beta-NGF).
GN NGFB.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=86300646; PubMed=3017695;
RA Ebendahl T., Larhammar D., Persson H.;
RT "Structure and expression of the chicken beta nerve growth factor
RT gene.";
RL EMBO J. 5:1483-1487(1986).
RN [2]
RP SEQUENCE OF 118-243 FROM N.A.
RX MEDLINE=86248129; PubMed=3720959;
RA Wion D., Perret C., Frechin N., Keller A., Behar G., Brachet P.,
RA Auffray C.;
RT "Molecular cloning of the avian beta-nerve growth factor gene:
RT transcription in brain.";
RL FEBS Lett. 203:82-86(1986).
RN [3]
RP SEQUENCE OF 121-243 FROM N.A.
RX MEDLINE=86300647; PubMed=2427334;
RA Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT delineation of conserved and unconserved domains and their
RT relationship to the biological activity and antigenicity of NGF.";
RL EMBO J. 5:1489-1493(1986).
RN [4]
RP SEQUENCE OF 181-222 FROM N.A.
RX MEDLINE=91222573; PubMed=2025430;
RA Hallboeoek F., Ibanez C.F., Persson H.;
RT "Evolutionary studies of the nerve growth factor family reveal a
RT novel member abundantly expressed in Xenopus ovary.";
RL Neuron 6:845-858(1991).
CC -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC EMBRYONIC SENSORY NEURONS.
CC -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC ---
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC ---
DR EMBL; X04003; CAA27633.1; ALT_INIT.
DR EMBL; X04067; CAA27703.1; -.
DR EMBL; M26810; AAA48984.1; -.
DR PIR; A24857; A24857.
DR PIR; A26311; A26311.
DR HSSP; P01139; 1BET.
DR InterPro; IPR002072; NGF.
DR Pfam; PF00243; NGF; 1.
DR PRINTS; PR00268; NGF.
DR ProDom; PD002052; NGF; 1.
DR SMART; SM00140; NGF; 1.
DR PROSITE; PS00248; NGF_1; 1.
DR PROSITE; PS50270; NGF_2; 1.
KW Growth factor; Signal.
FT SIGNAL 1 22 POTENTIAL.
FT PROPEP 23 125
FT CHAIN 126 243 BETA-NERVE GROWTH FACTOR.
FT DISULFID 139 204 BY SIMILARITY.
FT DISULFID 182 232 BY SIMILARITY.
FT DISULFID 192 234 BY SIMILARITY.
SQ SEQUENCE 243 AA; 27138 MW; 74C306CB2079DA07 CRC64;

Query Match 61.7%; Score 788.5; DB 1; Length 243;
Best Local Similarity 64.9%; Pred. No. 1.4e-67;
Matches 161; Conservative 20; Mismatches 48; Indels 19; Gaps 6;

```
Qy        2 MSMLFYTLITAFLIGIQAEPHSESN----VPAGHTIPQVHWTKLQHSLDTALRRARSAPA 57
            ||||:|||| ||||| || | || |     || |::|    :  ||        |::||
Db        5 MSMLYYTLIIAFLIGTQAAPKSEDNGPLEYPAEHSLPSTQQSNGQHI-------AKAAPQ 57

Qy       58 AAIAARVA-----GQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAA 112
              | |      :  || :|   |||:| || |||||||||  :   |   | :  |
Db       58 TT-HGRFAWMPDGTEDLNIAMDQNFFKKKRFRSSRVLFSTQPPPVSRKGQSTGF-LSSAV 115

Qy      113 PFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFK 172
              ||| |:|| ::||: ||||||||||||:|||||||||||||| |||||||||:|||
Db      116 SLNRTARTKR-TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFK 174

Qy      173 QYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVC 232
            ||||||||||  || |||||||:||||||||||||||||||:||||||||||||||||
Db      175 QYFFETKCRDPRPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVC 234

Qy      233 VLSRKAVR 240
            |||||: |
Db      235 VLSRKSGR 242
```

RESULT 9
NGF_XENLA
ID NGF_XENLA STANDARD; PRT; 231 AA.
AC P21617;
DT 01-MAY-1991 (Rel. 18, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE Nerve growth factor precursor (NGF).
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=91362944; PubMed=1888511;
RA Carriero F., Campioni M., Cardinali B., Pierandrei-Amaldi P.;
RT "Structure and expression of the nerve growth factor gene in Xenopus
RT oocytes and embryos.";
RL Mol. Reprod. Dev. 29:313-322(1991).
RN [2]
RP SEQUENCE OF 170-211 FROM N.A.
RC TISSUE=Liver;
RX MEDLINE=91222573; PubMed=2025430;

```
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X55716; CAA39249.1; ALT_INIT.
DR   PIR; S14481; S14481.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    114       POTENTIAL.
FT   CHAIN       115    231       NERVE GROWTH FACTOR.
FT   DISULFID    128    193       BY SIMILARITY.
FT   DISULFID    171    221       BY SIMILARITY.
FT   DISULFID    181    223       BY SIMILARITY.
FT   CARBOHYD     63     63       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    107    107       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    158    158       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   231 AA;  26416 MW;  72A04E7D00B858C5 CRC64;

  Query Match             60.5%;  Score 773;  DB 1;  Length 231;
  Best Local Similarity   63.6%;  Pred. No. 3.9e-66;
  Matches  154;  Conservative   27;  Mismatches   41;  Indels   20;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHT----IP-QVHWTK-LQHSLDTALRRARSA 55
           ||||:|||: | || :|| | :: : ||  :    ||   | || | ||
Db       1 MSMLYYTLLIAILISVQAAPKTKDHAPARSSAKSRIPHHTHRTKSLHHS---------- 49

Qy      56 PAAAIAARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFN 115
           : |:     ||:||||:||:||: ||||||||||||  : | | |:: :      |
Db      50 -HGKLEAKEPSYFRNVTVDPKLFRKRKFRSPRVLFSTQPPPLSEDFQHLEY-LDDEESLN 107

Qy     116 RTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYF 175
           :| |:|| : ||: |:||:|||||||:|||:|| ||||||||| ||||||||||||||||
Db     108 KTIRAKR-TVHPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYF 166

Qy     176 FETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLS 235
           |||||||| || |||||||:||||||||||||||||||:||||||||||||||||||||||
Db     167 FETKCRDPKPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLS 226

Qy     236 RK 237
           ||
Db     227 RK 228


RESULT 10
NGF_BUNMU
ID   NGF_BUNMU      STANDARD;      PRT;   243 AA.
AC   P34128;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Bungarus multicinctus (Many-banded krait).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Bungarinae; Bungarus.
OX   NCBI_TaxID=8616;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom gland;
RX   MEDLINE=93192074; PubMed=7916740;
RA   Danse J.M., Garnier J.M.;
RT   "Molecular cloning of a cDNA encoding a nerve growth factor precursor
RT   from the krait, Bungarus multicinctus.";
RL   Growth Factors 8:77-86(1993).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S56212; AAB25729.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    125
FT   CHAIN       126    243       NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27514 MW;  E33F64B142179A08 CRC64;

  Query Match             52.9%;  Score 675.5;  DB 1;  Length 243;
  Best Local Similarity   56.8%;  Pred. No. 7.4e-57;
  Matches  137;  Conservative   30;  Mismatches   67;  Indels    7;  Gaps    4;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAG----HTIPQVHWTKLQHSLDTALRRARSAPA 57
           |||| |||| |||||| | | || ||| |          :  :    | |:    :  |
Db       1 MSMLCYTLIIAFLIGIWAAPKSEDNVPLGSPAKSDFSDTNCAQTHEGLKTSRNTDQHHPT 60

Qy      58 AAIAA-RVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNR 116
              :  :  |   || |||:||:||| :|||||||||||  : | | : | :      ||
Db      61 PKKSEDQELGSAANIIVDPKLFQKRRFQSPRVLFSTQPPPLSRDEQSVKF-LDTEDTLNR 119

Qy     117 THRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFF 176
              :  : :||: ::|| ||||:|||| :|| ||||||  | |: :||:|| |:|||||
Db     120 NIWA-NNENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFF 178

Qy     177 ETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSR 236
           |||||:|||| |||||||:||||||||| ||||||||:| :|:|||||||||||||:||
Db     179 ETKCRNPNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISR 238

Qy     237 K 237
           |
Db     239 K 239
```

```
RESULT 11
NGF_DABRR
ID   NGF_DABRR      STANDARD;      PRT;   117 AA.
AC   P30894;
DT   01-JUL-1993 (Rel. 26, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Daboia russelli russelli (Russell's viper) (Vipera russelli russelli).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Viperinae; Daboia.
OX   NCBI_TaxID=31159;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=93120151; PubMed=1477101;
RA   Koyama J.-I., Inoue S., Ikeda K., Hayashi K.;
RT   "Purification and amino-acid sequence of a nerve growth factor from
RT   the venom of Vipera russelli russelli.";
RL   Biochim. Biophys. Acta 1160:287-292(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; S28161; S28161.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Glycoprotein; Growth factor.
FT   DISULFID     12     77       BY SIMILARITY.
FT   DISULFID     55    105       BY SIMILARITY.
FT   DISULFID     65    107       BY SIMILARITY.
FT   CARBOHYD     21     21       N-LINKED (GLCNAC. . .).
SQ   SEQUENCE   117 AA;  13283 MW;  A64559C5FEC11F66 CRC64;

  Query Match             37.9%;  Score 484;  DB 1;  Length 117;
  Best Local Similarity   74.1%;  Pred. No. 4.4e-39;
  Matches   83;  Conservative   19;  Mismatches   10;  Indels    0;  Gaps    0;

Qy     126 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNP 185
           ||: ::|||||||||||||| :|||||::|  | |: :||:||:|:|||||||||::|||
Db       1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy     186 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 237
           | |||||||:|||||||||| |||:|||||  ||:|||||||:||||||:|||
Db      61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 12
NGF_XIPMA
ID   NGF_XIPMA      STANDARD;      PRT;   194 AA.
AC   P34129;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xiphophorus maculatus (Southern platyfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92333301; PubMed=1629719;
RA   Gotz R., Raulf F., Schartl M.;
RT   "Brain-derived neurotrophic factor is more highly conserved in
RT   structure and function than nerve growth factor during vertebrate
RT   evolution.";
RL   J. Neurochem. 59:432-442(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X59941; CAA42566.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; FALSE_NEG.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     30       POTENTIAL.
FT   PROPEP       31     79
FT   CHAIN        80    194       NERVE GROWTH FACTOR.
FT   DISULFID     90    155       BY SIMILARITY.
FT   DISULFID    133    183       BY SIMILARITY.
FT   DISULFID    143    185       BY SIMILARITY.
SQ   SEQUENCE   194 AA;  21596 MW;  0369E0F4A51147AE CRC64;

  Query Match             37.7%;  Score 481.5;  DB 1;  Length 194;
  Best Local Similarity   58.9%;  Pred. No. 1.4e-38;
  Matches   99;  Conservative   13;  Mismatches   39;  Indels   17;  Gaps    3;

Qy      72 TVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFE-VGGAAPFNRTHRSKRSSSHPIFH 130
           ||||:|| |||  |||||||:|||         | |  ||     || |  :       |
Db      40 TVDPKLFNKRRHLSPRVLFSSQPP---------DAEPAGGQGVSRRTRRQPQ-------H 83

Qy     131 RGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGC 190
           || :|||:|||||||:|| |||| |||| ||  |||||   ||||||| |  |    | |
Db      84 RGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSRC 143

Qy     191 RGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKA 238
           |||::|||||:|| :|||||:|||    | ||| |||: |||||||||:
Db     144 LGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191


RESULT 13
NT3_HUMAN
ID   NT3_HUMAN      STANDARD;      PRT;   257 AA.
AC   P20783;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
```

```
RX   MEDLINE=90262727; PubMed=2344409;
RA   Rosenthal A., Goeddel D.V., Nguyen T., Lewis M., Shih A.,
RA   Laramee G.R., Nikolics K., Winslow J.W.;
RT   "Primary structure and biological activity of a novel human
RT   neurotrophic factor.";
RL   Neuron 4:767-773(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91045937; PubMed=2236018;
RA   Jones K.R., Reichardt L.F.;
RT   "Molecular cloning of a human gene that is a member of the nerve
RT   growth factor family.";
RL   Proc. Natl. Acad. Sci. U.S.A. 87:8060-8064(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90306351; PubMed=2365067;
RA   Kaisho Y., Yoshimura K., Nakahama K.;
RT   "Cloning and expression of a cDNA encoding a novel human neurotrophic
RT   factor.";
RL   FEBS Lett. 266:187-191(1990).
RN   [4]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [5]
RP   SEQUENCE OF 194-236 FROM N.A.
RC   TISSUE=Leukocyte;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
RN   [6]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=95217877; PubMed=7703225;
RA   Robinson R.C., Radziejewski C., Stuart D.I., Jones E.Y.;
RT   "Structure of the brain-derived neurotrophic factor/neurotrophin 3
RT   heterodimer.";
RL   Biochemistry 34:4139-4146(1995).
RN   [7]
RP   VARIANT GLU-76.
RX   MEDLINE=95251647; PubMed=7733919;
RA   Hattori M., Nanko S.;
RT   "Association of neurotrophin-3 gene variant with severe forms of
RT   schizophrenia.";
RL   Biochem. Biophys. Res. Commun. 209:513-518(1995).
RN   [8]
RP   VARIANT GLU-76.
RX   MEDLINE=96253892; PubMed=8925252;
RA   Arinami T., Takekoshi K., Itokawa M., Hamaguchi H., Toru M.;
RT   "Failure to find associations of the CA repeat polymorphism in the
RT   first intron and the Gly-63/Glu-63 polymorphism of the neurotrophin-3
RT   gene with schizophrenia.";
RL   Psychiatr. Genet. 6:13-15(1996).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- POLYMORPHISM: Variant Glu-76 (frequently reported as Glu-63) was
CC       thought to be associated with severe forms of schizophrenia. This
CC       does not seem to be the case.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X53655; CAA37703.1; -.
DR   EMBL; M37763; AAA59953.1; -.
DR   EMBL; M61180; AAA63231.1; -.
DR   PIR; JH0141; JH0141.
DR   PIR; A36208; A36208.
DR   PIR; S10719; S10719.
DR   PIR; C40304; C40304.
DR   PDB; 1BND; 04-APR-96.
DR   PDB; 1B8K; 09-FEB-99.
DR   Genew; HGNC:8023; NTF3.
DR   MIM; 162660; -.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; Polymorphism; 3D-structure.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217
FT   DISULFID    195    246
FT   DISULFID    205    248
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARIANT      76     76       G -> E.
FT                                /FTId=VAR_012084.
SQ   SEQUENCE   257 AA;  29354 MW;  39A5BB3B28E25E03 CRC64;

  Query Match             37.7%;  Score 481.5;  DB 1;  Length 257;
  Best Local Similarity   40.7%;  Pred. No. 2e-38;
  Matches  107;  Conservative   37;  Mismatches   88;  Indels   31;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQV--------------HWTKLQHSLD 46
           ||:||| :  |:| |||     : ::|      :                  :: :
Db       1 MSILFYVIFLAYLRGIQGNNMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDVKENYQ 60

Qy      47 TALRRA-------RSAPAAAIAARVAGQTRNITVDPRLFK-KRRLRSPRVLFSTQPPREA 98
           : | :|       |  || :    |      | :|  | : :||  ||||| |   | +
Db      61 STLPKAEAPREPERGGPAKSAFQPV------IAMDTELLRQQRRYNSPRVLLSDSTPLEP 114

Qy      99 ADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEV 158
             ::  ||     ||| | || : |   ||||:||||| |:|| ||::| ||:| :|
Db     115 PPLYLMEDYVGSPVVANRTSRRKRYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQV 173

Qy     159 MVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GK 217
           ||||:   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |
Db     174 TVLGEIKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNK 233

Qy     218 QAAWRFIRIDTACVCVLSRKAVR 240
             ||:|||||:||| ||||  |
Db     234 LVGWRWIRIDTSCVCALSRKIGR 256


RESULT 14
NT3_XENLA
ID   NT3_XENLA      STANDARD;      PRT;   260 AA.
AC   P25435;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF) (Nerve
DE   growth factor 2) (NGF-2).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
```

```
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=97252639; PubMed=9096131;
RA   Xie K., Wang T., Olafsson P., Mizuno K., Lu B.;
RT   "Activity-dependent expression of NT-3 in muscle cells in culture:
RT   implications in the development of neuromuscular junctions.";
RL   J. Neurosci. 17:2947-2958(1997).
RN   [2]
RP   SEQUENCE OF 197-217 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U27576; AAB17723.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    141
FT   CHAIN       142    260       NEUROTROPHIN-3.
FT   DISULFID    155    220       BY SIMILARITY.
FT   DISULFID    198    249       BY SIMILARITY.
FT   DISULFID    208    251       BY SIMILARITY.
FT   CARBOHYD    134    134       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   260 AA;  30022 MW;  FFB8507A5EA93CC5 CRC64;

  Query Match             37.1%;  Score 474;  DB 1;  Length 260;
  Best Local Similarity   41.5%;  Pred. No. 1e-37;
  Matches  108;  Conservative   36;  Mismatches   94;  Indels   22;  Gaps    7;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGH------TIPQVHWTK---LQHSLDTALRRA 52
           ||:||| :   :| || |    : |:|          : |    |    : ::||
Db       1 MSILFYVMFLPYLCGIHATNMDKRNLPENSMNSLFIKLIQADLLKNKISKQTVDTKENHQ 60

Qy      53 RSAPAAAIAARVAGQTRN-------ITVDPRLF---KKRRLRSPRVLFSTQPPREAADTQ 102
           : |   |   : |           |:::  |    |:|| :||||| |   | |
Db      61 STIPKPQILLDLDGDDNMKQDFQPVISLEAELVKQQKQRRYKSPRVLLSDSLPLEPPPLY 120

Qy     103 DLDFEVGGAAPF-NRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVL 161
           :|  :| :    ||| | || : |   ||||:||||| |:|| ||  | ||:| :| ||
Db     121 LMDDYIGHSTVVNNRTSRRKRFAEHK-GHRGEYSVCDSESLWVTDKMNAIDIRGHQVTVL 179

Qy     162 GEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GKQAA 220
           ||:   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:|||| :  |
Db     180 GEIKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKMVG 239

Qy     221 WRFIRIDTACVCVLSRKAVR 240
           ||:|||||:||| ||||  |
Db     240 WRWIRIDTSCVCALSRKIGR 259


RESULT 15
NT3_FELCA
ID   NT3_FELCA      STANDARD;      PRT;   257 AA.
AC   Q9TST2;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Felis silvestris catus (Cat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX   NCBI_TaxID=9685;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20211727; PubMed=10745216;
RA   Lein E.S., Hohn A., Shatz C.J.;
RT   "Dynamic regulation of BDNF and NT-3 expression during visual system
RT   development.";
RL   J. Comp. Neurol. 420:1-18(2000).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF192538; AAF03424.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138       BY SIMILARITY.
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217       BY SIMILARITY.
FT   DISULFID    195    246       BY SIMILARITY.
FT   DISULFID    205    248       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29403 MW;  EB53F7E59C5113E4 CRC64;

  Query Match             37.1%;  Score 473.5;  DB 1;  Length 257;
  Best Local Similarity   40.1%;  Pred. No. 1.1e-37;
  Matches  103;  Conservative   40;  Mismatches   95;  Indels   19;  Gaps    5;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQV--------------HWTKLQHSLD 46
           ||:||| :  |:| |||     : ::|       :                  |: :
Db       1 MSILFYVIFLAYLRGIQGNNMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDLKENYQ 60

Qy      47 TALRRARSAPAAAIAARVAGQTRNIT-VDPRLFK-KRRLRSPRVLFSTQPPREAADTQDL 104
           : | :| :           : : :| :|  | : :||  ||||| |   | |      :
Db      61 STLPKAEAPREPEQGEPAKSEFQPVTAMDTELLRQQRRYSSPRVLLSDSTPLEPPPLYLM 120

Qy     105 DFEVGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEV 164
           :  ||     ||| | || : |   ||||:|:||| |:|| ||::| ||:| :| ||||:
Db     121 EDYVGSPVAANRTSRRKRYAEHK-SHRGEYSLCDSESLWVTDKSSAIDIRGHQVTVLGEI 179

Qy     165 NINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRF 223
```

```
            ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |   ||:
Db    180 KSGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRW 239

Qy    224 IRIDTACVCVLSRKAVR 240
          |||||:||| ||||  |
Db    240 IRIDTSCVCALSRKIGR 256


Search completed: December  2, 2002, 15:12:42
Job time : 10.9297 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 37.449 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1266	99.1	241	4	Q9UKL8	Q9uk18 homo sapien
2	1265	99.1	241	4	Q9P2Q8	Q9p2q8 homo sapien
3	1258	98.5	241	4	Q96P60	Q96p60 homo sapien
4	1249	97.8	241	6	Q9N2F0	Q9n2f0 gorilla gor
5	1248	97.7	241	6	Q9N2F1	Q9n2f1 pan troglod
6	1247	97.7	241	6	Q9N2E9	Q9n2e9 pongo pygma
7	1132	88.6	217	6	Q9N183	Q9n183 macaca fusc
8	1038	81.3	294	11	Q91XB4	Q91xb4 mus musculu
9	713	55.8	241	13	Q9DEZ9	Q9dez9 crotalus du
10	709	55.5	241	13	Q90W38	Q90w38 bothrops ja
11	462	36.2	87	6	Q9TTC3	Q9ttc3 cervus elap
12	459	35.9	87	4	Q9P2Z4	Q9p2z4 homo sapien
13	449.5	35.2	132	11	Q9WU15	Q9wu15 mesocricetu
14	426.5	33.4	241	6	Q9N182	Q9n182 macaca fusc
15	426	33.4	286	13	Q91988	Q91988 xiphophorus
16	363	28.4	247	6	O97759	O97759 ailurus ful
17	360	28.2	249	11	Q8VHH4	Q8vhh4 mus musculu
18	342.5	26.8	246	13	Q8QG74	Q8qg74 cyclophiops
19	341.5	26.7	246	13	Q8QG76	Q8qg76 japalura sp
20	339.5	26.6	270	13	Q9YH42	Q9yh42 brachydanio
21	335.5	26.3	246	13	Q8QG75	Q8qg75 phrynocepha
22	334.5	26.2	153	11	Q9CYL3	Q9cyl3 mus musculu
23	331.5	26.0	177	13	Q9I8L2	Q9i8l2 poephila gu
24	319	25.0	247	13	Q8QG77	Q8qg77 tylototrito
25	294.5	23.1	101	6	Q9TT22	Q9tt22 macaca fusc
26	293	22.9	324	13	Q9XY95	Q9xy95 lampetra fl
27	291	22.8	186	12	Q9J5D9	Q9j5d9 fowlpox vir
28	242	19.0	52	6	Q9N1V4	Q9n1v4 equus cabal
29	226	17.7	85	6	O02790	O02790 macropus fu
30	224	17.5	42	6	O02802	O02802 trichosurus
31	220	17.2	85	6	O13114	O13114 isoodon mac
32	220	17.2	85	6	O13122	O13122 tarsipes ro
33	220	17.2	85	6	O02795	O02795 ornithorhyn
34	220	17.2	85	6	O02798	O02798 petaurus br
35	220	17.2	85	6	O13104	O13104 cercartetus
36	220	17.2	85	6	O02792	O02792 notoryctes
37	220	17.2	85	6	O13105	O13105 dasyuroides
38	220	17.2	85	6	O02801	O02801 tachyglossu
39	219	17.1	85	6	O02803	O02803 trichosurus
40	211	16.5	42	6	O02794	O02794 ornithorhyn
41	209	16.4	42	6	O02800	O02800 tachyglossu
42	178.5	14.0	186	6	Q9BFJ4	Q9bfj4 lemur catta
43	178.5	14.0	186	11	Q99NW1	Q99nw1 castor cana
44	176.5	13.8	186	6	Q9BFJ7	Q9bfj7 ochotona hy
45	175	13.7	185	6	Q9BFK6	Q9bfk6 talpa altai

ALIGNMENTS

RESULT 1
Q9UKL8
ID Q9UKL8 PRELIMINARY; PRT; 241 AA.
AC Q9UKL8;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE Nerve growth factor B.
GN NGFB.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=99256269; PubMed=10322959;
RA Tong Y., Wang H., Chen W.;
RT "Cloning and sequencing of the gene for premature beta nerve growth factor.";
RL Chung Kuo Ying Yung Sheng Li Hsueh Tsa Chih 13:316-318(1997).
RN [2]
RP SEQUENCE FROM N.A.
RA Tong Y., Wang H.;
RL Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF150960; AAD55975.1; -.
DR HSSP; P01139; 1BET.
DR InterPro; IPR002072; NGF.
DR Pfam; PF00243; NGF; 1.
DR PRINTS; PR00268; NGF.
DR ProDom; PD002052; NGF; 1.
DR SMART; SM00140; NGF; 1.
DR PROSITE; PS00248; NGF_1; 1.
DR PROSITE; PS50270; NGF_2; 1.
SQ SEQUENCE 241 AA; 26959 MW; 619DFC65EB3BD671 CRC64;

Query Match 99.1%; Score 1266; DB 4; Length 241;
Best Local Similarity 99.6%; Pred. No. 6.6e-117;
Matches 240; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 2
Q9P2Q8
ID   Q9P2Q8      PRELIMINARY;      PRT;   241 AA.
AC   Q9P2Q8;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037517; BAA90437.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26998 MW;  D5531ED825D96C14 CRC64;

  Query Match             99.1%;  Score 1265;  DB 4;  Length 241;
  Best Local Similarity   99.6%;  Pred. No. 8.3e-117;
  Matches  240;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQXHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 3
Q96P60
ID   Q96P60      PRELIMINARY;      PRT;   241 AA.
AC   Q96P60;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor beta.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhang Y., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF411526; AAL05874.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26964 MW;  745216485C21E558 CRC64;

  Query Match             98.5%;  Score 1258;  DB 4;  Length 241;
  Best Local Similarity   98.8%;  Pred. No. 4.1e-116;
  Matches  238;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVSINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACMCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACMCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 4
Q9N2F0
ID   Q9N2F0      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Gorilla gorilla (gorilla).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Gorilla.
OX   NCBI_TaxID=9593;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=GORILLA-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037519; BAA90439.1; -.
```

```
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26915 MW;  6F54D163C384BB34 CRC64;

  Query Match             97.8%;  Score 1249;  DB 6;  Length 241;
  Best Local Similarity   98.8%;  Pred. No. 3.1e-115;
  Matches  238;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           |||||||||||||||||| ||||||||||||| |||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAELHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           |||||||||||||||||||||||||||||| |||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPPEAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 5
Q9N2F1
ID   Q9N2F1      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CHIMP-220;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037518; BAA90438.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26868 MW;  B39FAA8912C00A0B CRC64;

  Query Match             97.7%;  Score 1248;  DB 6;  Length 241;
  Best Local Similarity   98.3%;  Pred. No. 3.9e-115;
  Matches  237;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           |||||||||||||| |||||||||||||||| ||||||||||||||||||||||||||

Db       1 MSMLFYTLITAFLIGTQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           |||||||||||||||||||||||||||||| |||||||||| |||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPPEAADTQDLDFXVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 6
Q9N2E9
ID   Q9N2E9      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2E9;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pongo pygmaeus (Orangutan).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pongo.
OX   NCBI_TaxID=9600;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=ORAN-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037520; BAA90440.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26876 MW;  DFC168E7E4E01F15 CRC64;

  Query Match             97.7%;  Score 1247;  DB 6;  Length 241;
  Best Local Similarity   98.3%;  Pred. No. 4.9e-115;
  Matches  237;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           |||||||||||||||||||||||||||||||| |||||||||||||| ||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSTPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           ||||||| |||||||||||||||||||||||| ||||||||||||||||||||||||||
Db      61 ARVAGQTCNITVDPRLFKKRRLRSPRVLFSTQPPPEAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241
```

```
RESULT 7
Q9N183
ID   Q9N183      PRELIMINARY;      PRT;   217 AA.
AC   Q9N183;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta nerve growth factor (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF222682; AAF33790.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     217    217
SQ   SEQUENCE   217 AA;  24240 MW;  36A5A2D1DFCD8D5C CRC64;

  Query Match             88.6%;  Score 1132;  DB 6;  Length 217;
  Best Local Similarity   98.2%;  Pred. No. 9.8e-104;
  Matches  213;  Conservative    0;  Mismatches    4;  Indels    0;  Gaps    0;

Qy     12 AFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIAARVAGQTRNI 71
          ||||||||||||||||||||||| |||||||||||||| ||||| ||||||||||||
Db      1 AFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRVRSAPAVAIAARVAGQTRNI 60

Qy     72 TVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHR 131
          ||||||||||||||||||||| ||||||||||||||||||||||||||||||||||||||
Db     61 TVDPRLFKKRRLRSPRVLFSTQPPPEAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHR 120

Qy    132 GEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCR 191
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 GEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCR 180

Qy    192 GIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDT 228
          |||||||||||||||||||||||||||||||||||||
Db    181 GIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDT 217


RESULT 8
Q91XB4
ID   Q91XB4      PRELIMINARY;      PRT;   294 AA.
AC   Q91XB4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Similar to nerve growth factor, beta.
GN   NGFB.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=SALIVARY GLAND;
RA   Strausberg R.;
RL   Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; BC011123; AAH11123.1; -.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   294 AA;  32326 MW;  9EE7402DAC899229 CRC64;

  Query Match             81.3%;  Score 1038;  DB 11;  Length 294;
  Best Local Similarity   84.6%;  Pred. No. 2.7e-94;
  Matches  193;  Conservative   14;  Mismatches   21;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||:||||:::|||| | ::|: ||||||||||||||||||||| | ||
Db     67 MSMLFYTLITAFLIGVQAEPYTDSNVPEGDSVPEAHWTKLQHSLDTALRRARSAPTAPIA 126

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||| |||||||||||||||||| ||||||||||  ::|| |||:  |  |||||||||
Db    127 ARVTGQTRNITVDPRLFKKRRLHSPRVLFSTQPPPTSSDTLDLDFQAHGTIPFNRTHRSK 186

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||:||:|| ||||||||||||||||||||||||||| || |||||||||:|||||||||
Db    187 RSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 246

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTA 229
            |||:|||||||||||||||||||||||||| | ||||||||||||
Db    247 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTA 294


RESULT 9
Q9DEZ9
ID   Q9DEZ9      PRELIMINARY;      PRT;   241 AA.
AC   Q9DEZ9;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Nerve growth factor.
OS   Crotalus durissus terrificus (South American rattlesnake).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Crotalus.
OX   NCBI_TaxID=8732;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Hayashi M.A.F., Radis-Baptista G., Yamane T., Camargo A.C.M.;
RT   "Cloning and sequence of a cDNA coding for a rattlesnake (Crotalus
RT   durissus terrificus) nerve growth factor.";
RL   Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF306533; AAG30924.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27118 MW;  4A261F42C5D6FF3F CRC64;

  Query Match             55.8%;  Score 713;  DB 13;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 2.6e-62;
  Matches  144;  Conservative   29;  Mismatches   58;  Indels   10;  Gaps    4;
```

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAG----HTIPQVHWTKLQHSLDTALRRARSAPA 57
          |||| |||| |||||| | | || ||| |      :      |   :| |:    :  ||
Db      1 MSMLCYTLIIAFLIGIWAAPKSEDNVPLGSPATSDLSDTSCAKTHEALKTSRNIDQHYPA 60

Qy     58 AAIAA-RVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNR 116
            |  :  |   || |||:||:||| :||||||||||  : | | :|     |   ||
Db     61 PKKAEDQEFGSAANIIVDPKLFQKRRFQSPRVLFSTQPPPLSRDEQSVD----NANSLNR 116

Qy    117 THRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFF 176
            |:||   ||:  |||:||||||:||| :|||||||:|  | |: :|||||:|:|||||
Db    117 NIRAKR-EDHPVHKRGEYSVCDSVNVWVANKTTATDIRGNLVTVMVDVNINNNVYKQYFF 175

Qy    177 ETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSR 236
          |||||:|||| :||||||::|||||||||:|||||||:| ||:|||||||:|||||:||
Db    176 ETKCRNPNPVPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDSACVCVISR 235

Qy    237 K 237
          |
Db    236 K 236


RESULT 10
Q90W38
ID   Q90W38      PRELIMINARY;      PRT;   241 AA.
AC   Q90W38;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Putative neurotrophic growth factor.
GN   NGF.
OS   Bothrops jararacussu (Jararacussu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Bothrops.
OX   NCBI_TaxID=8726;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Kashima S., Pereira J.O., Astolfi Filho S., Soares A.M.,
RA   Cintra A.C.O., Giglio J.R., Franca S.C.;
RT   "Molecular cloning and cDNA sequence of a nerve growth factor
RT   precursor from Bothrops jararacussu venomous gland.";
RL   Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY007318; AAG12169.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27161 MW;  AC57F724A6531A8F CRC64;

  Query Match           55.5%;  Score 709;  DB 13;  Length 241;
  Best Local Similarity  59.3%;  Pred. No. 6.5e-62;
  Matches  143;  Conservative   29;  Mismatches   59;  Indels   10;  Gaps    4;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAG----HTIPQVHWTKLQHSLDTALRRARSAPA 57
          |||| ||||   |||| | | || ||| |      :     ||   :| |:    :  ||
Db      1 MSMLCYTLIITLLIGIWAAPKSEDNVPLGSPATSDLSVTSCTKTHEALKTSRNTDQHYPA 60

Qy     58 AAIAA-RVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNR 116
            :  |   || |||:||:||| :||||||||||  : | | :|     |   ||
Db     61 PKKEEDQEFGSAANIIVDPKLFQKRRFQSPRVLFSTQPPPLSRDEQSVD----DANSLNR 116

Qy    117 THRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFF 176
            |:||   ||: :|||:||||||:||| :|||||||:|  | |: :|||||:|:|||||
Db    117 NIRAKR-EDHPVHNRGEYSVCDSVNVWVANKTTATDIRGNVVTVMVDVNINNNVYKQYFF 175

Qy    177 ETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSR 236
          |||||:|||| :||||||::|||||||||:|||||||:| ||:|||||||:|||||:||
Db    176 ETKCRNPNPVPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDTACVCVISR 235

Qy    237 K 237
          |
Db    236 K 236


RESULT 11
Q9TTC3
ID   Q9TTC3      PRELIMINARY;      PRT;    87 AA.
AC   Q9TTC3;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Beta nerve growth factor (Fragment).
GN   NGF.
OS   Cervus elaphus scotticus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea;
OC   Cervidae; Cervinae; Cervus.
OX   NCBI_TaxID=109627;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Robertson T.M., Stanton J.L., Clark D.E., Sheard P.W., Harris A.J.,
RA   Suttie J.M.;
RT   "NGF expression in Antler.";
RL   Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF145043; AAF17235.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      87     87
SQ   SEQUENCE   87 AA;  9876 MW;  17EE06E49AF7A0A4 CRC64;

  Query Match           36.2%;  Score 462;  DB 6;  Length 87;
  Best Local Similarity  96.6%;  Pred. No. 4.4e-38;
  Matches   84;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy    139 SVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHW 198
          |||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||:||
Db      1 SVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDGGCRGIDAKHW 60

Qy    199 NSYCTTTHTFVKALTMDGKQAAWRFIR 225
          |||||||||||||||| |||||||||
Db     61 NSYCTTTHTFVKALTMDDKQAAWRFIR 87


RESULT 12
Q9P2Z4
ID   Q9P2Z4      PRELIMINARY;      PRT;    87 AA.
AC   Q9P2Z4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Truncated beta nerve growth factor (Fragment).
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95236507; PubMed=7720122;
RA   Li Y., Huang B., Cai L.;
RT   "Amplification, cloning and sequencing of beta nerve growth factor
RT   gene in the Chinese population.";
RL   Chung-Kuo I Hsueh Ko Hsueh Yuan Hsueh Pao 16:334-338(1994).
DR   EMBL; S76884; AAB34114.2; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
```

```
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   87 AA;  9729 MW;  45E9E27388FDEE27 CRC64;

  Query Match             35.9%;  Score 459;  DB 4;  Length 87;
  Best Local Similarity   94.3%;  Pred. No. 8.6e-38;
  Matches   82;  Conservative    2;  Mismatches    3;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||:||||||||||||||||||||||||||||||||||||:||||||||||
Db      1 SSSHPIFHRGEFAVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFEQYFFETKCRD 60

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFV 209
          |||||||||| |||||||||| || |
Db     61 PNPVDSGCRGTDSKHWNSYCTTNHTLV 87


RESULT 13
Q9WU15
ID   Q9WU15      PRELIMINARY;      PRT;   132 AA.
AC   Q9WU15;
DT   01-NOV-1999 (TrEMBLrel. 12, Created)
DT   01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Nerve growth factor (Fragment).
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Jansen H.T., Lehman M.N., Stevens P.J.;
RT   "Golden Hamster Neurotrophin and Neurotrophin Receptor cDNA.";
RL   Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF104239; AAD21010.1; -.
FT   NON_TER       1      1
FT   NON_TER     132    132
SQ   SEQUENCE   132 AA;  14649 MW;  0C36EB6283225DA6 CRC64;

  Query Match             35.2%;  Score 449.5;  DB 11;  Length 132;
  Best Local Similarity   75.4%;  Pred. No. 1.3e-36;
  Matches   89;  Conservative   10;  Mismatches   18;  Indels    1;  Gaps    1;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||:||||:::| || | ::|| ||||||||:||||||||||| |:||
Db     16 MSMLFYTLITAFLIGVQAEPYTDSIVPEGDSVPQAHWTKLQHSVDTALRRARSAPGASIA 75

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHR 119
          ||| |||||||   :|||||||||||||| |||   ||| |||:  |   ||||||
Db     76 ARVTGQTRNIT-GTQLFKKRRLRSPRVLFSAQPPPTFADTLDLDFQAHGTISFNRTHR 132


RESULT 14
Q9N182
ID   Q9N182      PRELIMINARY;      PRT;   241 AA.
AC   Q9N182;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Neurotrophin-3 (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Hashimoto T., Okuno H., Tokuyama W., Li Y.X., Miyashita Y.;
RT   "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT   their receptor messenger RNAs in monkey rhinal cortex.";
RL   Neuroscience 0:0-0(2000).
DR   EMBL; AF222683; AAF33791.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  27803 MW;  AB95E457C7B07113 CRC64;

  Query Match             33.4%;  Score 426.5;  DB 6;  Length 241;
  Best Local Similarity   39.1%;  Pred. No. 5.1e-34;
  Matches   97;  Conservative   35;  Mismatches   85;  Indels   31;  Gaps    6;

Qy      5 LFYTLITAFLIGIQAEPHSESNVPAGHTIPQV--------------HWTKLQHSLDTAL 49
          ||| :  |:| |||     : ::|          :                  :: :  : |
Db      1 LFYVIFLAYLRGIQGNNMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDVKENYQSTL 60

Qy     50 RRA-------RSAPAAAIAARVAGQTRNITVDPRLFK-KRRLRSPRVLFSTQPPREAADT 101
            :|       |  || :    |      | :|  | : :||  ||||| |   | |
Db     61 PKAEAPREPERGQPAKSEFQPV------IAMDTELLRQQRRYNSPRVLLSDSTPLEPPPL 114

Qy    102 QDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVL 161
            ::  ||     ||| | || : |   ||||:|||| |:|| ||::| ||:| :| ||
Db    115 YLMEDYVGNPVVANRTSRRKRYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVL 173

Qy    162 GEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GKQAA 220
          ||:   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |
Db    174 GEIKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVG 233

Qy    221 WRFIRIDT 228
          ||:|||||
Db    234 WRWIRIDT 241


RESULT 15
Q91988
ID   Q91988      PRELIMINARY;      PRT;   286 AA.
AC   Q91988;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Neurotrophin-6 precursor.
OS   Xiphophorus maculatus (Southern platyfish), and
OS   Xiphophorus helleri.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083, 8084;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95059452; PubMed=7969471;
RA   Gotz R., Koster R., Winkler C., Raulf F., Lottspeich F., Schartl M.,
RA   Thoenen H.;
RT   "Neurotrophin-6 is a new member of the nerve growth factor family.";
RL   Nature 372:266-269(1994).
DR   EMBL; L36942; AAA61923.1; -.
DR   EMBL; L36325; AAA61922.1; -.
```

```
DR   EMBL; L36326; AAA61921.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Signal.
FT   SIGNAL        1    142
FT   CHAIN       143    286       NEUROTROPHIN-6.
SQ   SEQUENCE   286 AA;  31424 MW;  5607DBA66792E12D CRC64;

  Query Match             33.4%;  Score 426;  DB 13;  Length 286;
  Best Local Similarity   38.6%;  Pred. No. 7e-34;
  Matches  110;  Conservative   31;  Mismatches   84;  Indels   60;  Gaps   10;

Qy       9 LITAFLIGIQAEPHSESNV-----PAGHTIPQVH----------WTKLQHSLDTALRRA 52
           |:   |||:||  :    :      | |:  |              |  |    |  |
Db       6 LVLLLLIGVQAVLNMGGGLARNPGAANHSAGQQETAAARGQLSQDQTSYQQHRTTHHRTK 65

Qy      53 RSAPAAA--------IAARVAGQT---RNITVDPRLFKKRRLR-SPRVLFS-TQPPREAA 99
           |:  ||:        |    || :    :  |||:|| ||  | ||||:||   |  :
Db      66 RTQSAASNMQNRTPVIGPSPAGSSPDPSSPVVDPKLFSKRHYRPSPRVVFSEVIPSHDVL 125

Qy     100 DTQDLDFE-VGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEV 158
           | :  ||| | |        | :| :     ||||:|||||:: || :|| |||: | ||
Db     126 DGEGYDFERVRGL-------RVRRKAVSHTMHRGEYSVCDSINTWV-NKTRATDMSGNEV 177

Qy     159 MVLGEVNINNSVFKQYFFETKCRDP----------------------NPVDSGCRGIDSK 196
            ||  | :|| | || |:|| || |                        :||||||||:
Db     178 TVLSHVTVNNKVKKQLFYETTCRSPTHRSSGIVIGGRSGGRGGKQGSKTGNSGCRGIDSR 237

Qy     197 HWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           :|||:|| |  :| |||:  :| |||||||: ||||||||  :  |
Db     238 YWNSHCTNTDIYVSALTVFKEQTAWRFIRINAACVCVLSRNSWSR 282


Search completed: December  2, 2002, 15:12:00
Job time : 38.449 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 16.7386 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1277	100.0	242	4	US-09-675-503-1	Sequence 1, Appli
2	1270	99.5	241	1	US-08-266-080B-4	Sequence 4, Appli
3	1270	99.5	241	1	US-08-451-947-5	Sequence 5, Appli
4	1270	99.5	241	2	US-08-424-826A-5	Sequence 5, Appli
5	1270	99.5	241	2	US-08-595-043A-75	Sequence 75, Appl
6	1270	99.5	241	3	US-08-970-865-1	Sequence 1, Appli
7	1270	99.5	241	3	US-08-928-694-5	Sequence 5, Appli
8	1270	99.5	241	4	US-09-363-573-1	Sequence 1, Appli
9	1270	99.5	241	4	US-09-447-356-3	Sequence 3, Appli
10	1270	99.5	241	5	PCT-US91-06950-5	Sequence 5, Appli
11	1270	99.5	241	5	PCT-US95-05423-4	Sequence 4, Appli
12	996	78.0	240	3	US-08-910-691-11	Sequence 11, Appl
13	651	51.0	120	1	US-08-440-049-3	Sequence 3, Appli
14	651	51.0	120	2	US-08-441-513A-3	Sequence 3, Appli
15	651	51.0	120	3	US-08-581-662-31	Sequence 31, Appl
16	651	51.0	120	4	US-08-845-541B-1	Sequence 1, Appli
17	651	51.0	120	4	US-09-066-065A-1	Sequence 1, Appli
18	651	51.0	120	4	US-09-447-356-1	Sequence 1, Appli
19	651	51.0	120	4	US-09-664-295-31	Sequence 31, Appl
20	651	51.0	120	5	PCT-US95-06918-3	Sequence 3, Appli
21	648	50.7	120	3	US-08-970-865-2	Sequence 2, Appli
22	648	50.7	120	4	US-09-363-573-2	Sequence 2, Appli
23	648	50.7	121	4	US-09-675-503-2	Sequence 2, Appli
24	648	50.7	157	4	US-09-675-922-4	Sequence 4, Appli
25	647.5	50.7	167	4	US-09-675-922-8	Sequence 8, Appli
26	642	50.3	119	3	US-08-753-642-2	Sequence 2, Appli
27	642	50.3	153	4	US-09-675-922-2	Sequence 2, Appli
28	642	50.3	163	4	US-09-675-922-6	Sequence 6, Appli
29	637	49.9	120	4	US-08-845-541B-3	Sequence 3, Appli
30	637	49.9	120	4	US-09-066-065A-3	Sequence 3, Appli
31	634	49.6	120	4	US-08-845-541B-4	Sequence 4, Appli
32	634	49.6	120	4	US-09-066-065A-4	Sequence 4, Appli
33	629	49.3	120	4	US-08-845-541B-12	Sequence 12, Appl
34	629	49.3	120	4	US-09-066-065A-12	Sequence 12, Appl
35	628	49.2	120	4	US-08-845-541B-17	Sequence 17, Appl
36	628	49.2	120	4	US-08-845-541B-20	Sequence 20, Appl
37	628	49.2	120	4	US-09-066-065A-17	Sequence 17, Appl
38	628	49.2	120	4	US-09-066-065A-20	Sequence 20, Appl
39	626	49.0	120	4	US-08-845-541B-18	Sequence 18, Appl
40	626	49.0	120	4	US-08-845-541B-21	Sequence 21, Appl
41	626	49.0	120	4	US-09-066-065A-18	Sequence 18, Appl
42	626	49.0	120	4	US-09-066-065A-21	Sequence 21, Appl
43	623	48.8	120	4	US-08-845-541B-13	Sequence 13, Appl
44	623	48.8	120	4	US-08-845-541B-19	Sequence 19, Appl
45	623	48.8	120	4	US-09-066-065A-13	Sequence 13, Appl

ALIGNMENTS

RESULT 1
US-09-675-503-1
; Sequence 1, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: ISOLATION OF NEUROTROPHINS FROM A
; TITLE OF INVENTION: MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
; TITLE OF INVENTION: USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
; FILE REFERENCE: GENENT.037C2
; CURRENT APPLICATION NUMBER: US/09/675,503
; CURRENT FILING DATE: 2000-09-29
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-675-503-1

Query Match 100.0%; Score 1277; DB 4; Length 242;
Best Local Similarity 100.0%; Pred. No. 1.7e-143;
Matches 242; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PMSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAI 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PMSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAI 60

Qy      61 AARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRS 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRS 120

Qy     121 KRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKC 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 KRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKC 180

Qy     181 RDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 RDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
```

```
Qy     241 RA 242
           ||
Db     241 RA 242


RESULT 2
US-08-266-080B-4
; Sequence 4, Application US/08266080B
; Patent No. 5606031
;  GENERAL INFORMATION:
;    APPLICANT:  Jack Lile
;    APPLICANT:  Tadahiko Kohno
;    APPLICANT:  Duane Bonam
;    APPLICANT:  Mary S. Rosendahl
;    TITLE OF INVENTION:  Production of Biologically Active
;    TITLE OF INVENTION:  Recombinant Neurotrophic Protein
;    NUMBER OF SEQUENCES:  13
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Swanson & Bratschun, L.L.C.
;      STREET:  8400 E. Prentice Avenue, Suite 200
;      CITY:  Englewood
;      STATE:  Colorado
;      COUNTRY:  USA
;      ZIP:  80111
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette, 5.25 inch, 360 Kb storage
;      COMPUTER:  IBM compatible
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  WordPerfect 5.1
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/266,080B
;      FILING DATE:  27-JUNE-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240,122
;      FILING DATE:  09-MAY-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/087,912
;      FILING DATE:  06-JULY-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/680,681
;      FILING DATE:  04-APRIL-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/594,126
;      FILING DATE:  09-OCT-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/547,750
;      FILING DATE:  02-JULY-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/505,441
;      FILING DATE:  06-APRIL-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Barry J. Swanson
;      REGISTRATION NUMBER:  33,215
;      REFERENCE/DOCKET NUMBER:  SYNE200C5
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (303) 793-3333
;      TELEFAX:  (303) 793-3433
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    FEATURE:
;      NAME/KEY:  inferred amino acid sequence of human NGF
US-08-266-080B-4

  Query Match             99.5%;  Score 1270;  DB 1;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
           |
Db     241 A 241


RESULT 3
US-08-451-947-5
; Sequence 5, Application US/08451947
; Patent No. 5702906
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/451,947
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-451-947-5

  Query Match             99.5%;  Score 1270;  DB 1;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241
```

```
RESULT 4
US-08-424-826A-5
; Sequence 5, Application US/08424826A
; Patent No. 5830858
;  GENERAL INFORMATION:
;    APPLICANT:  Rosenthal, Arnon
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  98
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/424,826A
;      FILING DATE:  19-Apr-1995
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240387
;      FILING DATE:  10-May-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  25-SEP-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P1C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-424-826A-5

  Query Match             99.5%;  Score 1270;  DB 2;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241
```

```
RESULT 5
US-08-595-043A-75
; Sequence 75, Application US/08595043A
; Patent No. 5935824
;  GENERAL INFORMATION:
;    APPLICANT:  SGARLATO, GREGORY D.
;    TITLE OF INVENTION:  PROTEIN EXPRESSION SYSTEM
;    NUMBER OF SEQUENCES:  90
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  MEDLEN & CARROLL
;      STREET:  220 MONTGOMERY STREET, SUITE 2200
;      CITY:  SAN FRANCISCO
;      STATE:  CALIFORNIA
;      COUNTRY:  UNITED STATES OF AMERICA
;      ZIP:  94104
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/595,043A
;      FILING DATE:  31-JAN-1996
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  CARROLL, PETER G.
;      REGISTRATION NUMBER:  32,837
;      REFERENCE/DOCKET NUMBER:  SGAR-00371
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 705-8410
;      TELEFAX:  (415) 397-8338
;  INFORMATION FOR SEQ ID NO:  75:
;    SEQUENCE CHARACTERISTICS:
;     LENGTH: 241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-595-043A-75

  Query Match             99.5%;  Score 1270;  DB 2;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120
```

```
Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 6
US-08-970-865-1
; Sequence 1, Application US/08970865
; Patent No. 6005081
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-1

  Query Match             99.5%;  Score 1270;  DB 3;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 7
US-08-928-694-5
; Sequence 5, Application US/08928694
; Patent No. 6037320
;  GENERAL INFORMATION:
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/928,694
;      FILING DATE:  12-Sep-1997
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/451947
;      FILING DATE:  26-MAY-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P2C1D2C1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-928-694-5

  Query Match             99.5%;  Score 1270;  DB 3;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120
```

```
Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 8
US-09-363-573-1
; Sequence 1, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-1

  Query Match            99.5%;  Score 1270;  DB 4;  Length 241;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 9
US-09-447-356-3
; Sequence 3, Application US/09447356
; Patent No. 6395513
; GENERAL INFORMATION:
;  APPLICANT:  FOSTER, KEITH ALAN
;  APPLICANT:  DUGGAN, MICHAEL JOHN
;  APPLICANT:  SHONE, CLIFFORD CHARLES
;  TITLE OF INVENTION:  CLOSTRIDIAL TOXIN DERIVATIVES ABLE TO MODIFY PERIPHERAL
;  TITLE OF INVENTION:  SENSORY AFFERENT FUNCTIONS
;  FILE REFERENCE:  023223/0104
;  CURRENT APPLICATION NUMBER: US/09/447,356
;  CURRENT FILING DATE:  1999-11-22
;  PRIOR APPLICATION NUMBER:  08/945,037
;  PRIOR FILING DATE:  1998-01-12
;  PRIOR APPLICATION NUMBER:  GB 9508204.6
;  PRIOR FILING DATE:  1995-04-21
;  NUMBER OF SEQ ID NOS:  11
;  SOFTWARE:  PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 241
;   TYPE: PRT
;   ORGANISM: Murine sp.
US-09-447-356-3

  Query Match            99.5%;  Score 1270;  DB 4;  Length 241;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241


RESULT 10
PCT-US91-06950-5
; Sequence 5, Application PC/TUS9106950
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
```

```
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US91/06950
;      FILING DATE:  19910924
;      CLASSIFICATION:  436
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Hensley, Max D.
;      REGISTRATION NUMBER:  27,043
;      REFERENCE/DOCKET NUMBER:  666P1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/266-1994
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  AMINO ACID
;      TOPOLOGY:  linear
PCT-US91-06950-5

  Query Match             99.5%;  Score 1270;  DB 5;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
          |
Db     241 A 241


RESULT 11
PCT-US95-05423-4
; Sequence 4, Application PC/TUS9505423
;  GENERAL INFORMATION:
;    APPLICANT:  Jack Lile
;    APPLICANT:  Tadahiko Kohno
;    APPLICANT:  Duane Bonam
;    APPLICANT:  Mary S. Rosendahl
;    TITLE OF INVENTION:  Production of Biologically Active
;    TITLE OF INVENTION:  Recombinant Neurotrophic Protein
;    NUMBER OF SEQUENCES:  13
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Swanson & Bratschun, L.L.C.
;      STREET:  8400 E. Prentice Avenue, Suite 200
;      CITY:  Englewood
;      STATE:  Colorado
;      COUNTRY:  USA
;      ZIP:  80111
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette, 3.50 inch, 1.44 MG storage
;      COMPUTER:  IBM compatible
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  WordPerfect 5.1
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/05423
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/266,090
;      FILING DATE:  27-JUNE-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240,122
;      FILING DATE:  09-MAY-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/087,912
;      FILING DATE:  06-JULY-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/680,681
;      FILING DATE:  04-APRIL-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/594,126
;      FILING DATE:  09-OCT-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/547,750
;      FILING DATE:  02-JULY-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/505,441
;      FILING DATE:  06-APRIL-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Barry J. Swanson
;      REGISTRATION NUMBER:  33,215
;      REFERENCE/DOCKET NUMBER:  SYNE200/PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (303) 793-3333
;      TELEFAX:  (303) 793-3433
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    FEATURE:
;      NAME/KEY:  inferred amino acid sequence of human NGF
PCT-US95-05423-4

  Query Match             99.5%;  Score 1270;  DB 5;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-142;
  Matches  241;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy     242 A 242
          |
Db     241 A 241


RESULT 12
```

```
US-08-910-691-11
; Sequence 11, Application US/08910691
; Patent No. 6015552
;  GENERAL INFORMATION:
;    APPLICANT:  WATANABE, Tatsuya
;    APPLICANT:  YOSHITOMI, Sumie
;    APPLICANT:  SASADA, Reiko
;    TITLE OF INVENTION:  THERAPEUTIC AGENT FOR NEUTROPENIA
;    NUMBER OF SEQUENCES:  12
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS &
;      ADDRESSEE:  CUSHMAN
;      STREET:  130 Water Street
;      CITY:  Boston
;      STATE:  Massachusetts
;      COUNTRY:  US
;      ZIP:  02109
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/910,691
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/074,969
;      FILING DATE:  19930604
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  NEUNER, George W
;      REGISTRATION NUMBER:  26964
;      REFERENCE/DOCKET NUMBER:  12345
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)523-3400
;      TELEFAX:  (617)523-6440
;      TELEX:  200291 STRE UR
;  INFORMATION FOR SEQ ID NO:  11:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  240 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-910-691-11

  Query Match             78.0%;  Score 996;  DB 3;  Length 240;
  Best Local Similarity   79.2%;  Pred. No. 3.9e-110;
  Matches  190;  Conservative   19;  Mismatches   29;  Indels    2;  Gaps    2;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy      62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy     122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
           | : |   ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|:
Db     121 RYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCK 179

Qy     182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 240
           :  || :|||||| ||||| | |: |:|:||| :  |   ||:|||||:||| ||||  |
Db     180 EARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 239


RESULT 13
US-08-440-049-3
; Sequence 3, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-3

  Query Match             51.0%;  Score 651;  DB 1;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-69;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 14
US-08-441-513A-3
; Sequence 3, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
```

```
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-3

  Query Match            51.0%;  Score 651;  DB 2;  Length 120;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-69;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 15
US-08-581-662-31
; Sequence 31, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 31
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-31

  Query Match            51.0%;  Score 651;  DB 3;  Length 120;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-69;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


Search completed: December  2, 2002, 15:09:42
Job time : 17.7386 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 8.51114 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-1
Perfect score: 1277
Sequence: 1 PMSMLFYTLITAFLIGIQAE.....FIRIDTACVCVLSRKAVRRA 242

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1277	100.0	242	12	US-10-072-681-1	Sequence 1, Appli
2	1270	99.5	241	8	US-08-450-842-5	Sequence 5, Appli
3	1266	99.1	241	10	US-09-822-263-16	Sequence 16, Appl
4	648	50.7	121	12	US-10-072-681-2	Sequence 2, Appli
5	648	50.7	157	10	US-09-798-338-4	Sequence 4, Appli
6	647.5	50.7	167	10	US-09-798-338-8	Sequence 8, Appli
7	642	50.3	153	10	US-09-798-338-2	Sequence 2, Appli
8	642	50.3	163	10	US-09-798-338-6	Sequence 6, Appli
9	621	48.6	121	9	US-09-813-398-9	Sequence 9, Appli
10	584	45.7	121	12	US-10-072-681-3	Sequence 3, Appli
11	481.5	37.7	257	8	US-08-450-842-4	Sequence 4, Appli
12	452	35.4	142	8	US-08-450-842-52	Sequence 52, Appl
13	390	30.5	72	10	US-09-848-664-21	Sequence 21, Appl
14	388.5	30.4	119	10	US-09-745-032-6	Sequence 6, Appli
15	388.5	30.4	119	10	US-09-742-600-6	Sequence 6, Appli
16	388.5	30.4	119	10	US-09-872-090-6	Sequence 6, Appli
17	388.5	30.4	120	10	US-09-745-032-3	Sequence 3, Appli
18	388.5	30.4	120	10	US-09-742-600-3	Sequence 3, Appli
19	388.5	30.4	120	10	US-09-872-090-3	Sequence 3, Appli
20	387.5	30.3	117	10	US-09-745-032-7	Sequence 7, Appli
21	387.5	30.3	117	10	US-09-742-600-7	Sequence 7, Appli
22	387.5	30.3	117	10	US-09-872-090-7	Sequence 7, Appli
23	387.5	30.3	118	10	US-09-745-032-5	Sequence 5, Appli
24	387.5	30.3	118	10	US-09-742-600-5	Sequence 5, Appli
25	387.5	30.3	118	10	US-09-872-090-5	Sequence 5, Appli
26	383.5	30.0	120	10	US-09-745-032-1	Sequence 1, Appli
27	383.5	30.0	120	10	US-09-742-600-1	Sequence 1, Appli
28	383.5	30.0	120	10	US-09-872-090-1	Sequence 1, Appli
29	376.5	29.5	120	9	US-09-813-398-11	Sequence 11, Appl
30	373.5	29.2	120	12	US-10-072-681-5	Sequence 5, Appli
31	363	28.4	247	8	US-08-450-842-3	Sequence 3, Appli
32	337.5	26.4	120	10	US-09-745-032-10	Sequence 10, Appl
33	337.5	26.4	120	10	US-09-742-600-10	Sequence 10, Appl
34	337.5	26.4	210	8	US-08-450-842-2	Sequence 2, Appli
35	333.5	26.1	120	10	US-09-745-032-9	Sequence 9, Appli
36	333.5	26.1	120	10	US-09-742-600-9	Sequence 9, Appli
37	329.5	25.8	168	8	US-08-450-842-6	Sequence 6, Appli
38	327.5	25.6	120	10	US-09-745-032-8	Sequence 8, Appli
39	327.5	25.6	120	10	US-09-742-600-8	Sequence 8, Appli
40	323.5	25.3	130	8	US-08-450-842-47	Sequence 47, Appl
41	311.5	24.4	119	12	US-10-072-681-4	Sequence 4, Appli
42	310	24.3	132	8	US-08-450-842-51	Sequence 51, Appl
43	309.5	24.2	120	9	US-09-813-398-10	Sequence 10, Appl
44	306.5	24.0	130	8	US-08-450-842-23	Sequence 23, Appl
45	304.5	23.8	130	8	US-08-450-842-22	Sequence 22, Appl

ALIGNMENTS

RESULT 1
US-10-072-681-1
; Sequence 1, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: PURIFICATION OF NGF
; FILE REFERENCE: GENENT.037C3
; CURRENT APPLICATION NUMBER: US/10/072,681
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; PRIOR APPLICATION NUMBER: 09/675,503
; PRIOR FILING DATE: 2000-09-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Homo sapien
US-10-072-681-1

Query Match 100.0%; Score 1277; DB 12; Length 242;
Best Local Similarity 100.0%; Pred. No. 1.8e-127;
Matches 242; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PMSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAI 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PMSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAI 60

Qy      61 AARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRS 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRS 120
```

```
Qy    121 KRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKC 180
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 KRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKC 180

Qy    181 RDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 RDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240

Qy    241 RA 242
          ||
Db    241 RA 242
```

RESULT 2
US-08-450-842-5
; Sequence 5, Application US/08450842
; Patent No. US20020045576A1
; GENERAL INFORMATION:
; APPLICANT: GENENTECH, INC.
; APPLICANT: ROSENTHAL, ARNON
; TITLE OF INVENTION: NOVEL NEUROTROPHIC FACTOR
; NUMBER OF SEQUENCES: 100
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 460 Point San Bruno Blvd
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/450,842
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/426419
; FILING DATE: 19-APR-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/030013
; FILING DATE: 22-MAR-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/648482
; FILING DATE: 31-JAN
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/587707
; FILING DATE: 1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Torchia, Timothy E.
; REGISTRATION NUMBER: 36,700
; REFERENCE/DOCKET NUMBER: 666P2C1D3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-8674
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 5:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 241 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-450-842-5

Query Match 99.5%; Score 1270; DB 8; Length 241;
Best Local Similarity 100.0%; Pred. No. 9.8e-127;
Matches 241; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
          |
Db    241 A 241
```

RESULT 3
US-09-822-263-16
; Sequence 16, Application US/09822263
; Patent No. US20020036598A1
; GENERAL INFORMATION:
; APPLICANT: Prayaga, Sudhirdas
; APPLICANT: Vernet, Corine
; APPLICANT: Shimkets, Richard A
; APPLICANT: Burgess, Catherine
; APPLICANT: Spytek, Kimberly
; APPLICANT: Tchernev, Velizar T
; TITLE OF INVENTION: No. US20020036598A1el Polynucleotides and Polypeptides Encoded
; FILE REFERENCE: 15966-572 CIP1
; CURRENT APPLICATION NUMBER: US/09/822,263
; CURRENT FILING DATE: 2001-06-15
; PRIOR APPLICATION NUMBER: 09/672,665
; PRIOR FILING DATE: 2000-09-28
; PRIOR APPLICATION NUMBER: 60/156,745
; PRIOR FILING DATE: 1999-09-30
; PRIOR APPLICATION NUMBER: 60/158,942
; PRIOR FILING DATE: 1999-10-06
; PRIOR APPLICATION NUMBER: 60/159,248
; PRIOR FILING DATE: 1999-10-13
; PRIOR APPLICATION NUMBER: 60/169,344
; PRIOR FILING DATE: 1999-12-06
; PRIOR APPLICATION NUMBER: 60/215,048
; PRIOR FILING DATE: 2000-06-29
; NUMBER OF SEQ ID NOS: 36
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 16
; LENGTH: 241
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-822-263-16

Query Match 99.1%; Score 1266; DB 10; Length 241;
Best Local Similarity 99.6%; Pred. No. 2.6e-126;
Matches 240; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy      2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQVHWTKLQHSLDTALRRARSAPAAAIA 61
          |||||||||||||||||||||||||||||||| ||||||||||||||||||||||||||||
Db      1 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQAHWTKLQHSLDTALRRARSAPAAAIA 60

Qy     62 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 121
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 ARVAGQTRNITVDPRLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSK 120

Qy    122 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 181
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 RSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCR 180

Qy    182 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

Qy    242 A 242
```

```
Db    241 A 241


RESULT 4
US-10-072-681-2
; Sequence 2, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-10-072-681-2

  Query Match             50.7%;  Score 648;  DB 12;  Length 121;
  Best Local Similarity   99.2%;  Pred. No. 2e-61;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||||
Db      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121


RESULT 5
US-09-798-338-4
; Sequence 4, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 157
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artifical
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-4

  Query Match             50.7%;  Score 648;  DB 10;  Length 157;
  Best Local Similarity   92.4%;  Pred. No. 2.9e-61;
  Matches  121;  Conservative    3;  Mismatches    1;  Indels    6;  Gaps    1;

Qy    116 RTHRSKR------SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNS 169
          | :||::      |||||||||||||||||||||||||||||||||||||||||||||||
Db     26 RLYRSRKLPVELESSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNS 85

Qy    170 VFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTA 229
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     86 VFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTA 145

Qy    230 CVCVLSRKAVR 240
          |||||||||||
Db    146 CVCVLSRKAVR 156


RESULT 6
US-09-798-338-8
; Sequence 8, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 8
;   LENGTH: 167
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-8

  Query Match             50.7%;  Score 647.5;  DB 10;  Length 167;
  Best Local Similarity   75.6%;  Pred. No. 3.6e-61;
  Matches  127;  Conservative    6;  Mismatches   10;  Indels   25;  Gaps    3;

Qy     74 DP-RLFKKRRLRSPRVLFSTQPPREAADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRG 132
          || ||:: |:|     |   :|         :: |               |||||||||
Db     23 DPKRLYRSRKLPVELPLIKMKP---------VELE--------------SSSHPIFHRG 58

Qy    133 EFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRG 192
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     59 EFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRG 118

Qy    193 IDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||||||||||||||||||||||||||||||||||||||||||||||
Db    119 IDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 166


RESULT 7
US-09-798-338-2
; Sequence 2, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
```

```
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 2
;   LENGTH: 153
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-2

  Query Match             50.3%;  Score 642;  DB 10;  Length 153;
  Best Local Similarity   100.0%;  Pred. No. 1.2e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     35 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 94

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     95 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 152


RESULT 8
US-09-798-338-6
; Sequence 6, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 6
;   LENGTH: 163
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-6

  Query Match             50.3%;  Score 642;  DB 10;  Length 163;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     45 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 104

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    105 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 162


RESULT 9
US-09-813-398-9
; Sequence 9, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
;  APPLICANT: Bruce D. Weintraub
;  APPLICANT:  Mariusz W. Szkudlinski
;  APPLICANT:  University of Maryland
;  TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
;  FILE REFERENCE: UOFMD.003C1
;  CURRENT APPLICATION NUMBER: US/09/813,398
;  CURRENT FILING DATE:  2001-03-20
;  PRIOR APPLICATION NUMBER: PCT/US99/05908
;  PRIOR FILING DATE: 1999-03-19
;  PRIOR APPLICATION NUMBER: PCT/US98/19772
;  PRIOR FILING DATE: 1998-09-22
;  NUMBER OF SEQ ID NOS: 41
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 9
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: HOMO SAPIEN
US-09-813-398-9

  Query Match             48.6%;  Score 621;  DB 9;  Length 121;
  Best Local Similarity   95.8%;  Pred. No. 1.4e-58;
  Matches  115;  Conservative    1;  Mismatches    4;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||  ||||||||||||||
Db      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNNINSVFKQYFFETKCRD 61

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242
          ||||||||||||||||||||||||||||:  ||||||||||||||||||||||||||
Db     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKAMLTDGKQAAWRFIRIDTACVCVLSRKAVRRA 121


RESULT 10
US-10-072-681-3
; Sequence 3, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: mouse
US-10-072-681-3

  Query Match             45.7%;  Score 584;  DB 12;  Length 121;
  Best Local Similarity   89.9%;  Pred. No. 1.2e-54;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61

Qy    183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241
          |||:|||||||||||||||||||||||| | ||||||||||||||||||| ||
Db     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120


RESULT 11
```

```
US-08-450-842-4
; Sequence 4, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  257 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-4

  Query Match             37.7%;  Score 481.5;  DB 8;  Length 257;
  Best Local Similarity   40.7%;  Pred. No. 2.3e-43;
  Matches  107;  Conservative   37;  Mismatches   88;  Indels   31;  Gaps    6;

Qy       2 MSMLFYTLITAFLIGIQAEPHSESNVPAGHTIPQV--------------HWTKLQHSLD 46
           ||:||| :  |:| |||     : ::|      :                  :: :
Db       1 MSILFYVIFLAYLRGIQGNNMDQRSLPEDSLNSLIIKLIQADILKNKLSKQMVDVKENYQ 60

Qy      47 TALRRA-------RSAPAAAIAARVAGQTRNITVDPRLFK-KRRLRSPRVLFSTQPPREA 98
           : | :|       |  || :    |      | :|  | : :||  ||||| |   | |
Db      61 STLPKAEAPREPERGGPAKSAFQPV------IAMDTELLRQQRRYNSPRVLLSDSTPLEP 114

Qy      99 ADTQDLDFEVGGAAPFNRTHRSKRSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEV 158
             ::  ||     ||| | || : |   ||||:||||| |:|| ||::| ||:| :|
Db     115 PPLYLMEDYVGSPVVANRTSRRKRYAEHK-SHRGEYSVCDSESLWVTDKSSAIDIRGHQV 173

Qy     159 MVLGEVNINNSVFKQYFFETKCRDPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMD-GK 217
           ||||:   ||  ||||:||:|::  || :|||||| ||||| | |: |:|:||| :  |
Db     174 TVLGEIKTGNSPVKQYFYETRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNK 233

Qy     218 QAAWRFIRIDTACVCVLSRKAVR 240
             ||:||||||:||| ||||  |
Db     234 LVGWRWIRIDTSCVCALSRKIGR 256


RESULT 12
US-08-450-842-52
; Sequence 52, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  52:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  142 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-52

  Query Match             35.4%;  Score 452;  DB 8;  Length 142;
  Best Local Similarity   64.1%;  Pred. No. 1.3e-40;
  Matches   91;  Conservative   12;  Mismatches   17;  Indels   22;  Gaps    4;

Qy     123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSV------------ 170
           ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVVLGEVPAAGGSP 60

Qy     171 FKQYFFETKCRDPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWR 222
           :||||||:|:  |  :         ||||:| :|| | |    ::|:||| | : :  ||
Db      61 LRQYFFETRCKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWR 120

Qy     223 FIRIDTA--CVCVLSRKAVRRA 242
           :||||||  ||||||||||||
Db     121 WIRIDTACVCVCVLSRKAVRRA 142


RESULT 13
```

```
US-09-848-664-21
; Sequence 21, Application US/09848664
; Patent No. US20020146414A1
; GENERAL INFORMATION:
;  APPLICANT: Sakiyama-Elbert, Shelly E.
;  APPLICANT:  Hubbell, Jeffrey A.
;  TITLE OF INVENTION: Controlled Release of No. US20020146414A1-Heparin Binding Growth
;  TITLE OF INVENTION:  Factors from Heparin Containing Matrices
;  FILE REFERENCE: ETH 108
;  CURRENT APPLICATION NUMBER: US/09/848,664
;  CURRENT FILING DATE:  2001-05-03
;  PRIOR APPLICATION NUMBER: 09/298,084
;  PRIOR FILING DATE: 1999-04-22
;  NUMBER OF SEQ ID NOS: 31
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 21
;   LENGTH: 72
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-848-664-21

  Query Match             30.5%;  Score 390;  DB 10;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-34;
  Matches   72;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy    183 PNPVDSGCRGID 194
          ||||||||||||
Db     61 PNPVDSGCRGID 72


RESULT 14
US-09-745-032-6
; Sequence 6, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-6

  Query Match             30.4%;  Score 388.5;  DB 10;  Length 119;
  Best Local Similarity   61.6%;  Pred. No. 5.2e-34;
  Matches   69;  Conservative   18;  Mismatches   24;  Indels    1;  Gaps    1;

Qy    130 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 189
          ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  |||:|
Db      7 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAAPVDNG 66

Qy    190 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||| ||||| | |: |:|:||| :  |   ||:|||||:||| ||||  |
Db     67 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 118


RESULT 15
US-09-742-600-6
; Sequence 6, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-6

  Query Match             30.4%;  Score 388.5;  DB 10;  Length 119;
  Best Local Similarity   61.6%;  Pred. No. 5.2e-34;
  Matches   69;  Conservative   18;  Mismatches   24;  Indels    1;  Gaps    1;

Qy    130 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 189
          ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  |||:|
Db      7 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAAPVDNG 66

Qy    190 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 240
          ||||| ||||| | |: |:|:||| :  |   ||:|||||:||| ||||  |
Db     67 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 118


Search completed: December  2, 2002, 15:14:33
Job time : 9.51114 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 24.1149 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	648	98.5	120	20	AAW81117	Nerve growth facto
2	648	98.5	120	21	AAB29141	N-terminal of neut
3	648	98.5	120	22	AAG64994	Nerve growth facto
4	648	98.5	120	22	AAB35944	NGF-beta amino aci
5	648	98.5	124	13	AAR21851	Chimeric neurotrop
6	648	98.5	241	12	AAR13063	Human NGF SmaI-Apa
7	648	98.5	241	12	AAR11474	Human nerve growth
8	648	98.5	241	12	AAR13858	Human nerve growth
9	648	98.5	241	12	AAR13886	NGF with pro-regio
10	648	98.5	241	16	AAR77419	Human nerve growth
11	648	98.5	241	16	AAR66688	Human nerve growth
12	648	98.5	241	18	AAW26237	Human preproNGF.
13	648	98.5	241	19	AAW48886	Human prepro-nerve
14	648	98.5	241	20	AAY07303	Human nerve growth
15	648	98.5	241	22	AAB67865	Amino acid sequenc
16	648	98.5	241	22	AAB66929	Human NGF. Homo s
17	648	98.5	241	23	AAE18904	Human beta nerve g
18	648	98.5	241	23	ABB04994	Human beta nerve g
19	648	98.5	245	5	AAP40038	Sequence encoded b
20	648	98.5	307	14	AAR45241	Human pre-pro nerv
21	648	98.5	307	19	AAW69725	Human beta-nerve g
22	644	97.9	307	14	AAR37799	Human NGF. Homo s
23	640	97.3	120	17	AAR90531	Pantropic neurotro
24	639	97.1	118	10	AAP91034	Human nerve growth
25	639	97.1	119	5	AAP40040	Sequence encoded b
26	639	97.1	119	12	AAR13064	Human NGF HindIII-
27	639	97.1	119	16	AAR77420	Nerve growth facto
28	639	97.1	119	21	AAB03347	Human beta-nerve g
29	639	97.1	129	14	AAR37539	Recombinant beta-N
30	639	97.1	129	18	AAW24145	Recombinant mini-f
31	639	97.1	152	23	AAM50302	Factor XIIIa subst
32	639	97.1	153	22	AAG67676	Amino acid sequenc
33	639	97.1	154	13	AAR22751	Human growth hormo
34	639	97.1	156	23	AAM50303	Nerve growth facto
35	639	97.1	157	21	AAB01596	Nerve growth facto
36	639	97.1	157	22	AAG67677	Amino acid sequenc
37	639	97.1	157	23	AAU85725	Synthetic nerve gr
38	639	97.1	162	23	AAM50300	Factor XIIIa subst
39	639	97.1	163	22	AAG67678	Amino acid sequenc
40	639	97.1	166	23	AAM50301	Nerve growth facto
41	639	97.1	167	22	AAG67679	Amino acid sequenc
42	639	97.1	222	21	AAW90884	Human proNGF prote
43	639	97.1	261	10	AAP91299	Human nerve growth
44	639	97.1	262	7	AAP61033	Human beta-nerve g
45	634	96.4	120	20	AAW81119	Nerve growth facto

ALIGNMENTS

RESULT 1
AAW81117
ID AAW81117 standard; protein; 120 AA.
XX
AC AAW81117;
XX
DT 01-MAR-1999 (first entry)
XX
DE Nerve growth factor wild type.
XX
KW Nerve growth factor; trkC; neuron; neural disease; animal feed;
KW neurotrophin assay; nerve cell culture media; neurotrophic factor; NT-3;
KW trkA; trkB.
XX
OS Homo sapiens.
XX
PN WO9849308-A1.
XX
PD 05-NOV-1998.
XX
PF 23-APR-1998; 98WO-US08242.
XX
PR 29-APR-1997; 97US-0841045.
PR 25-APR-1997; 97US-0845541.
XX
PA (GETH) GENENTECH INC.
XX
PI Presta LG, Urfer R, Winslow JW;
XX
DR WPI; 1999-009429/01.
XX
PT New variants of nerve growth factor able to bind trkC - contain
PT specified mutations and have multiple neurotrophic activities in a

PT single molecule, used for treating, e.g. peripheral neuropathy
XX
PS Example 1; Page 32-33; 53pp; English.
XX
CC Nerve growth factor was used to produce new variants of nerve growth
CC factor (NGF) with substitutions at amino acid positions: G23 and H84, and
CC one or both of V18 and V20, so that it acquires the ability to bind trkC.
CC The variants can be used to promote development, maintenance and
CC regeneration of neurons in vivo or in vitro, so can be used to treat a
CC wide range of neural diseases, e.g. Alzheimer's, Parkinson's,
CC Huntington's and Meniere's diseases; stroke; amyotrophic lateral
CC sclerosis; epilepsy; Down's syndrome; nerve deafness; Bell's palsy, or
CC specifically, peripheral neuropathy. They are also used as cognitive
CC enhancers and can also be used for diagnosis; in animal feeds; as
CC standards for neurotrophin assays; as additives for nerve cell culture
CC media, and for generation of specific antibodies. By introducing trkC
CC binding/signal inducing activity, the variants acquire the activity of
CC neurotrophic factor NT-3 while optionally retaining ability to bind trkA
CC and/or B and therefore provide several activities in a single molecule,
CC with more predictable pharmacokinetic and other properties than a mixture
CC of agents each with a single activity, and better pan-neurotrophic
CC activity than known compounds.
XX
SQ Sequence 120 AA;

Query Match 98.5%; Score 648; DB 20; Length 120;
Best Local Similarity 99.2%; Pred. No. 2.3e-69;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db 1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy 62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120

RESULT 2
AAB29141
ID AAB29141 standard; Protein; 120 AA.
XX
AC AAB29141;
XX
DT 02-FEB-2001 (first entry)
XX
DE N-terminal of neutrophic growth factor.
XX
KW Neutrophin; trkB; trkC; ototoxicity-related balance impairment;
KW Meniere's syndrome; myringitis; otitis media;
KW acute vestibular neuronitis; herpes zoster oticus; labyrinthitis;
KW middle; labyrinthe tumour; petrositis; otosclerosis; bacteria.
XX
OS Homo sapiens.
XX
PN US6121235-A.
XX
PD 19-SEP-2000.
XX
PF 29-DEC-1995; 95US-0581662.
XX
PR 29-DEC-1995; 95US-0581662.
XX
PA (GETH) GENENTECH INC.
XX
PI Gao W;
XX
DR WPI; 2000-618200/59.
XX
PT Treating ototoxin-induced neuronal-related balance impairment and
PT promoting vestibular ganglion neuron survival prior to, upon or after
PT exposure to an ototoxin, comprises administering a trkB or trkC agonist
PT -
XX
PS Disclosure; Column 57-58; 40pp; English.
XX
CC The present invention relates to treating ototoxin-induced
CC neuronal-related balance impairment in a mammal by administering a
CC trkB or trkC agonist, particularly neurotrophin-4/5 (NT-4/5).
CC Ototoxicity-related balance impairments include Meniere's syndrome,
CC myringitis, otitis media, acute vestibular neuronitis, herpes zoster
CC oticus, labyrinthitis, middle or labyrinthe tumours, petrositis and
CC otosclerosis. NT-4/5 may also be used to treat diseases
CC induced by gram positive, gram negative and acid-fast bacteria. The
CC present sequence is a protein used in the invention.
XX
SQ Sequence 120 AA;

Query Match 98.5%; Score 648; DB 21; Length 120;
Best Local Similarity 99.2%; Pred. No. 2.3e-69;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db 1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy 62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120

RESULT 3
AAG64994
ID AAG64994 standard; protein; 120 AA.
XX
AC AAG64994;
XX
DT 25-SEP-2001 (first entry)
XX
DE Nerve growth factor variant related protein SEQ ID NO: 1.
XX
KW Nerve growth factor; NGF; trkC-binding activity; trkA; trkB; neuropathy;
KW neuronal disorder; neurotrophin; variant; mutant; mutein; Bell's palsy;
KW amyotrophic lateral sclerosis; paralysis; neurodegenerative disease;
KW Parkinson's disease; Alzheimer's disease; multiple sclerosis.
XX
OS Unidentified.
XX
PN US2001012625-A1.
XX
PD 09-AUG-2001.
XX
PF 24-APR-1998; 98US-0066065.
XX
PR 25-APR-1997; 97US-0044918.
XX
PA (PRES/) PRESTA L G.
PA (URFE/) URFER R.
PA (WINS/) WINSLOW J W.
XX
PI Presta LG, Urfer R, Winslow JW;
XX
DR WPI; 2001-464388/50.
XX
PT Nerve growth factor variants which have trkC-binding activity and
PT trkC-signal inducing activity, useful for treating a neural disorder in
PT a mammal such as peripheral neuropathy (e.g. diabetic peripheral
PT neuropathy) -
XX
PS Disclosure; Page 19; 34pp; English.
XX
CC The present invention provides a number of nerve growth factor (NGF)
CC variants with trkC-binding activity and trkC-signal inducing activity.
CC They may also be capable of binding to trkA and trkB. The variants are
CC useful in the treatment of neuronal disorders, including peripheral
CC neuropathy and motor-neurone disorders, such as amyotrophic lateral

```
CC   sclerosis, Bell's palsy, and various conditions involving spinal muscular
CC   atrophy, or paralysis. They are also useful for treating other human
CC   neurodegenerative disorders, such as Alzheimer's disease, Parkinson's
CC   disease, epilepsy, multiple sclerosis, Huntington's disease, Down's
CC   Syndrome, nerve deafness, Meniere's disease and other conditions
CC   characterized by necrosis or loss of neurones, whether central,
CC   peripheral, or motor neurons.
XX
SQ   Sequence   120 AA;

  Query Match             98.5%;  Score 648;  DB 22;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 4
AAB35944
ID   AAB35944 standard; protein; 120 AA.
XX
AC   AAB35944;
XX
DT   26-FEB-2001  (first entry)
XX
DE   NGF-beta amino acid sequence.
XX
KW   Heparin binding; vascular graft; matrix; cell adhesion; growth factor;
KW   wound healing; dermal wound; wound healing; NGF-beta.
XX
OS   Unidentified.
XX
PN   WO200064481-A1.
XX
PD   02-NOV-2000.
XX
PF   22-APR-1999;   99WO-IB00800.
XX
PR   22-APR-1999;   99WO-IB00800.
XX
PA   (ETHZ-) ETH ZURICH & UNIV ZURICH.
XX
PI   Sakiyama SE,  Hubbell JA;
XX
DR   WPI; 2001-024627/03.
XX
PT   Matrix for controlled release of growth factor for wound healing, has
PT   substrate that attaches heparin binding peptide, protein growth factor
PT   that bind heparin with low affinity, and heparin or heparin-like
PT   polymer  -
XX
PS   Example 5; Page 21; 48pp; English.
XX
CC   This invention relates to a matrix comprising a substrate capable of
CC   providing attachment of a heparin binding peptide (HBP), a peptide
CC   comprising a binding domain which binds heparin with high affinity,
CC   heparin or heparin-like polymer, and a protein growth factor or peptide
CC   fragment which has a domain that binds heparin with low affinity.
CC   Included in the invention is a vascular graft comprising the matrix,
CC   which is capable of supporting cell adhesion. The matrix is used for
CC   delivering low heparin binding affinity growth factor proteins or
CC   peptides in a controlled manner suitable for wound healing. The matrix
CC   can be used in an article for treating dermal wounds, and in an
CC   implantable sterilized composition capable of supporting cell adhesion.
CC   The present sequence represents a growth factor protein. The protein is
CC   used in an example illustrating that non-heparin-binding growth factors
CC   can be released in a controlled manner from heparin-based drug delivery
CC   systems based on their low affinity for heparin.
XX
SQ   Sequence   120 AA;

  Query Match             98.5%;  Score 648;  DB 22;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 5
AAR21851
ID   AAR21851 standard; Protein; 124 AA.
XX
AC   AAR21851;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor R1.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing; peripheral;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..4
FT                   /note= "human BDNF preprosequence"
FT   Peptide         5..124
FT                   /note= "full mature human NGF"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 36; Fig 5; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) R1 which
CC   comprises the preprosequence of human brain derived neurotrophic
CC   factor (hBDNF) and the full mature sequence of human neurotrophic
CC   growth factor (hNGF). It may provide the activity of 2 NFs in a
CC   single mol. or may serve as a superagonist of an endogenous NF
CC   thereby enabling an increased biological response at lower doses.
CC   It may also be useful in targeting an active cpd. to cells
CC   responsive to NF. The design of chimeric Nfs, such as R1, which
CC   retain specific biological activity but which are directed to a
CC   subset of factor-responsive cells may enable treatment of neurological
CC   disorders but avoid the complications of more widespread activity
CC   of parent mols. It may be used in the treatment to eliminate
```

```
CC   diseased cells, e.g. virus infected cells or tumours of nervous system
CC   origin. It may also be used to treat patients whose nervous system has
CC   been damaged by trauma, surgery, ischemia, infection (e.g. polio or
CC   AIDS), metabolic disease, nutritional deficiency, malignancy or toxic
CC   agents. Also to treat e.g. Alzheimer's disease, ageing, peripheral
CC   neuropathies, Parkinson's disease, Huntington's chorea or amyotrophic
CC   lateral sclerosis. The NF or antibodies to it can also be used in the
CC   diagnosis and study of nervous system disorders. See also
CC   AAR21852-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   124 AA;

  Query Match             98.5%;  Score 648;  DB 13;  Length 124;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      5 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 64

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     65 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 124


RESULT 6
AAR13063
ID   AAR13063 standard; Protein; 241 AA.
XX
AC   AAR13063;
XX
DT   30-SEP-1991  (first entry)
XX
DE   Human NGF SmaI-ApaI fragment prod.
XX
KW   Expression vector; human nerve growth factor; yeast;
KW   senile dementia.
XX
OS   Homo sapiens.
XX
PN   JP03139285-A.
XX
PD   13-JUN-1991.
XX
PF   20-DEC-1989;   89JP-0328199.
XX
PR   27-JUL-1989;   89JP-0192581.
XX
PA   (TAKE ) TAKEDA CHEMICAL IND KK.
XX
DR   WPI; 1991-218449/30.
DR   N-PSDB; AAQ12638.
XX
PT   New yeast expression vector - used in prodn. of human nerve growth
PT   factor from corresp. yeast.
XX
PS   Disclosure; Fig 1(1-2); 14pp; Japanese.
XX
CC   Human NGF is useful as a reagent for study of the nervous system, and
CC   for treatment of senile dementia.  The DNA encoding this fragment was
CC   derived from the human gene or is synthesised chemically.
CC   See also AAQ12639.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 12;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 7
AAR11474
ID   AAR11474 standard; Protein; 241 AA.
XX
AC   AAR11474;
XX
DT   26-APR-1991  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   NGF; senile dementia.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= signal sequence
FT   Protein         19..241
FT                   /label= pro-NGF
FT   Protein         122..241
FT                   /label= mature NGF
FT   Disulfide-bond  135..202
FT   Disulfide-bond  180..230
FT   Disulfide-bond  190..232
XX
PN   EP414151-A.
XX
PD   27-FEB-1991.
XX
PF   17-AUG-1990;   90EP-0115815.
XX
PR   21-AUG-1989;   89JP-0212980.
PR   20-DEC-1989;   89JP-0328198.
PR   13-APR-1990;   90JP-0096252.
PR   07-JUN-1990;   90JP-0147392.
XX
PA   (TAKE ) TAKEDA CHEMICALS IND KK.
XX
PI   Kakinuma A,  Nakahama K,  Yoshimura K,  Kaisho Y,  Iwanw M;
XX
DR   WPI; 1991-059398/09.
DR   N-PSDB; AAQ10620.
XX
PT   Human nerve growth factor containing cysteine residues - used as
PT   reagent and therapeutic drug for senile dementia.
XX
PS   Claim 1; Fig 1; 33pp; English.
XX
CC   The sequence was deduced from a clone isolated from a lambda EMBL3
CC   genomic library prepd. from human leukocyte DNA, using a probe
CC   synthesised based on the sequence of the known human NGF gene [A.
CC   Ullrich et al., Nature  303, 821 (1983)]. The clone, betaLN2113,
CC   isolated from the library was cleaved with SmaI and ApaI to remove
CC   a 1kb fragment contg. the gene which was then inserted into plasmid
CC   pBluescript IIK to obtain pNGFP107G.  The gene was sequenced from
CC   this plasmid using Seeknase (Biochemical).  The sequence of the
CC   protein coding region was found to be in complete agreement with
CC   that of Ullrich et al.  The sequence was used to produce
CC   recombinant h-NGF for use in the prodn. of drugs for e.g. senile
CC   dementia.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 12;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
```

```
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 8
AAR13858
ID   AAR13858 standard; Protein; 241 AA.
XX
AC   AAR13858;
XX
DT   21-NOV-1991  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   hNGF.
XX
OS   Homo sapiens.
XX
PN   JP03175976-A.
XX
PD   31-JUL-1991.
XX
PF   12-DEC-1989;   89JP-0320483.
XX
PR   30-SEP-1989;   89JP-0253796.
PR   15-DEC-1988;   88JP-0314860.
PR   12-DEC-1989;   89JP-0320483.
XX
PA   (TAKE ) TAKEDA CHEMICAL IND KK.
XX
DR   WPI; 1991-269694/37.
DR   N-PSDB; AAQ13397.
XX
PT   Secretory prepn. of animal protein - by culturing
PT   Schizosaccharomyces pombe which retains DNA at 3'-terminal of
PT   promoter region.
XX
PS   Disclosure; Fig 3; 12pp; Japanese.
XX
CC   The amino acid sequence is encoded that of human nerve growth factor
CC   (NGF). It may be expressed in Schizosaccharomyces pombe using the
CC   glyceraldehyde-3-phosphate dehydrogenase (GLD) gene promoter.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 12;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 9
AAR13886
ID   AAR13886 standard; Protein; 241 AA.
XX
AC   AAR13886;
XX
DT   04-DEC-1991  (first entry)
XX
DE   NGF with pro-region and signal sequence.
XX
KW   Nerve growth factor; cerebral nerve system; senile; dementia;
KW   vector; expression.
XX
FH   Key             Location/Qualifiers
FT   Region          1..18
FT                   /label= sig_sequence
FT   Region          19..28
FT                   /label= pro-region
FT   Protein         29..241
FT                   /label= NGF
XX
PN   JP03183485-A.
XX
PD   09-AUG-1991.
XX
PF   26-JUL-1990;   90JP-0196270.
XX
PR   26-JUL-1990;   90JP-0196270.
PR   27-JUL-1989;   89JP-0192581.
PR   30-SEP-1989;   89JP-0253796.
XX
PA   (TAKE ) TAKEDA CHEMICAL IND KK.
XX
DR   WPI; 1991-277586/38.
DR   N-PSDB; AAQ13592.
XX
PT   Human nerve growth factor for treating senile dementia - obtd. by
PT   culturing yeast transformed by yeast expression vector contg. NGF
PT   encoding DNA.
XX
PS   Disclosure; Fig 1+3; 11pp; Japanese.
XX
CC   A human NGF gene (obtd. from pNGF107G) or its chemically synthesised
CC   DNA were used, opt. cleaved by restriction enzymes.  In the human NGF,
CC   arginine and alanine may added to the C-terminal.  A fragment of
CC   pNGF107G was ligated into pGLD906-1 contg. a GLD promoter to obtain
CC   pGGN228.   DNA comprising nucleotides 1-99 of this sequence and a
CC   a partial sequence of pGGN228 and pGLD906-1 were ligated to obtain
CC   pGGN301.
CC   S. cerevisiae NA74-3A(rho-)/pGGN301 (FERM-P2532) contains the
CC   expression vector and is useful for the prodn. of human NGF.
CC   The NGF is used as a reagent to study the cerebral nerve system
CC   and to treat senile dementia.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 12;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 10
AAR77419
ID   AAR77419 standard; Protein; 241 AA.
XX
AC   AAR77419;
XX
DT   10-FEB-1996  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   Nerve growth factor; neurotrophic factor; therapeutic;
KW   protein refolding; NGF.
XX
OS   Homo sapiens.
XX
```

```
FH   Key             Location/Qualifiers
FT   Protein         122..241
FT                   /note= "mature protein"
FT   Region          1..121
FT                   /note= "pre-region"
XX
PN   WO9530686-A1.
XX
PD   16-NOV-1995.
XX
PF   02-MAY-1995;    95WO-US05423.
XX
PR   27-JUN-1994;    94US-0266080.
PR   09-MAY-1994;    94US-0240122.
XX
PA   (SYNT ) SYNTEX-SYNERGEN NEUROSCIENCE JOINT VENTU.
XX
PI   Bonam D,  Kohno T,  Lile J,  Rosendahl MS;
XX
DR   WPI; 1995-404080/51.
DR   N-PSDB; AAT05437.
XX
PT   Process for bacterial expression of recombinant neurotrophic factor
PT   - useful for promoting the survival and maintaining phenotypic
PT   differentiation of nerve and glial cells.
XX
PS   Disclosure; Page 33-34; 57pp; English.
XX
CC   The nerve growth factor (NGF) gene is expressed in Escherichia
CC   coli cells.  The recombinant protein is solubilized and
CC   sulfonylated and allowed to refold in the presence of PEG and urea.
CC   Biologically active NGF, used for promoting the survival of and
CC   maintaining the phenotypic differentiation of nerve and glial cells,
CC   is isolated and purified.  This method breaks incorrectly formed
CC   disulphide bonds and allows refolding of the factor into the correct
CC   tertiary structure required for maximum yield of full active protein.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 16;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 11
AAR66688
ID   AAR66688 standard; Protein; 241 AA.
XX
AC   AAR66688;
XX
DT   23-AUG-1995  (first entry)
XX
DE   Human nerve growth factor.
XX
KW   Human nerve growth factor; hNGF; polyclonal antibody;
KW   immunogen; enzyme immunoassay.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= sig_peptide
FT   Peptide         19..121
FT                   /label= pro_peptide
FT   Misc-difference 8
FT                   /note= "corresponding codon TCG"
FT   Misc-difference 59
FT                   /note= "corresponding codon TAT"
FT   Misc-difference 173
FT                   /note= "corresponding codon TAG"
FT   Disulfide-bond  136..201
FT   Disulfide-bond  179..229
FT   Disulfide-bond  189..231
XX
PN   JP06317587-A.
XX
PD   15-NOV-1994.
XX
PF   14-FEB-1991;    91JP-0021181.
XX
PR   31-AUG-1990;    90JP-0231317.
XX
PA   (TAKE ) TAKEDA CHEM IND LTD.
XX
DR   WPI; 1995-033116/05.
DR   N-PSDB; AAQ79871.
XX
PT   Polyclonal antibody against human nerve growth factor (NGF) -
PT   useful to detect human NGF, for diagnosis of disease
XX
PS   Example 1; Pages 31-33; 35pp; Japanese.
XX
CC   AAQ79871 encodes AAR66688 human nerve growth factor (hNGF), the
CC   protein was used as an immunogen to generate a polyclonal
CC   antibody against hNGF. The polyclonal antibody can be used
CC   to detect and determine hNGF pref. by enzyme immunoassay.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 16;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 12
AAW26237
ID   AAW26237 standard; Protein; 241 AA.
XX
AC   AAW26237;
XX
DT   16-MAR-1998  (first entry)
XX
DE   Human preproNGF.
XX
KW   Fusion protein; hydrophilic spacer; recombinant; expression system;
KW   carboxypeptidase; preproNGF.
XX
OS   Homo sapiens.
XX
PN   WO9728272-A1.
XX
PD   07-AUG-1997.
XX
PF   31-JAN-1997;    97WO-US01470.
XX
PR   31-JAN-1996;    96US-0595043.
XX
PA   (TECH-) TECHNOLOGENE INC.
XX
PI   Sgarlato GD;
```

```
XX
DR   WPI; 1997-402624/37.
DR   N-PSDB; AAT80162.
XX
PT   Recombinant protein expression system for fusion protein production
PT   - useful for high quantity production of authentic recombinant
PT   proteins
XX
PS   Example 6; Page 140-141; 194pp; English.
XX
CC   A novel recombinant vector has been developed which comprises a
CC   nucleotide sequence encoding a fusion protein. The fusion protein
CC   comprises three domains joined together in order, from N-terminus to
CC   C-terminus, of a first domain comprising a protein of interest, a second
CC   domain comprising a hydrophilic spacer and an affinity domain, each
CC   domain comprising amino acid residues. The present sequence represents
CC   human preproNGF, used in example 6 of the present invention. The
CC   recombinant vector is used for the production of authentic recombinant
CC   proteins of interest. The method of the invention is useful for the
CC   expression of fusion proteins capable of isolation by affinity
CC   chromatography in pro- or eukaryotic cells. This method allows
CC   for the efficient cleavage and generation of authentic proteins of
CC   interest that do not contain extraneous (i.e. non-naturally occurring)
CC   amino acids.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 18;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 13
AAW48886
ID   AAW48886 standard; Protein; 241 AA.
XX
AC   AAW48886;
XX
DT   12-OCT-1998  (first entry)
XX
DE   Human prepro-nerve growth factor beta chain.
XX
KW   Neurotrophin; nerve growth factor; NGF; human; purification;
KW   hydrophobic interaction chromatography.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Protein         1..121
FT                   /label= Prepro_region
FT   Protein         122..241
FT                   /label= Mat_protein
FT   Modified-site   167
FT                   /note= "N-glycosylated"
FT   Region          179..189
FT                   /note= "conserved Cys-containing region involved in
FT                         Cys knot motif"
FT   Region          229..231
FT                   /note= "conserved Cys-containing region involved in
FT                         Cys knot motif"
XX
PN   WO9821234-A2.
XX
PD   22-MAY-1998.
XX
PF   14-NOV-1997;   97WO-US21068.
XX
PR   29-MAY-1997;   97US-0047855.
PR   15-NOV-1996;   96US-0030838.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Beck JT,  Burton LE,  Schmelzer CH;
XX
DR   WPI; 1998-322333/28.
XX
PT   Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT   variant(s) - using hydrophobic interaction chromatography,
PT   optionally in combination with high performance cation exchange
PT   chromatography
XX
PS   Disclosure; Fig 4; 59pp; English.
XX
CC   This polypeptide comprises the human nerve growth factor (NGF)
CC   beta chain precursor.  Methods are provided for large-scale
CC   purification of neurotrophins, including mature NGF, suitable for
CC   clinical use.  A claimed method comprises: (1) separating the
CC   neurotrophin from the other proteins using a hydrophobic
CC   interaction chromatography resin (HICR); and optionally (2)
CC   separating the neurotrophin from a chemical variant by high
CC   performance cation exchange chromatography (HPCEC).  The processes
CC   can also be used for purification of e.g. mouse NGF (see AAW48887),
CC   brain-derived neurotrophic factor (see AAW48888), neurotrophin-4/5
CC   (see AAW48890) and neurotrophin-3 (see AAW48889).  The processes allow
CC   separation of neurotrophins from various undesirable misprocessed,
CC   misfolded, size, glycosylated or charge forms.  They allow selective
CC   separation from their variants and other molecules, and from other
CC   polypeptides with high pI.  The processes are applicable to
CC   starting materials from various sources, including fermentation
CC   broths or lysed bacterial or mammalian cells.
XX
SQ   Sequence   241 AA;

  Query Match             98.5%;  Score 648;  DB 19;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-69;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 14
AAY07303
ID   AAY07303 standard; Protein; 241 AA.
XX
AC   AAY07303;
XX
DT   06-JUL-1999  (first entry)
XX
DE   Human nerve growth factor beta protein.
XX
KW   Cerebrospinal; axon; growth; mammal; spinal cord injury; lesion; NGF2;
KW   expression vector; neurotrophin; nerve growth factor 2; neurotrophin 3;
KW   NT3; voluntary motor function.
XX
OS   Homo sapiens.
XX
PN   WO9900148-A2.
XX
PD   07-JAN-1999.
XX
PF   30-JUN-1998;   98WO-US13778.
XX
```

PR 30-JUN-1997; 97US-0051255.
XX
PA (REGC) UNIV CALIFORNIA.
XX
PI Gage FH, Grill R, Tuszynski MH;
XX
DR WPI; 1999-095478/08.
DR N-PSDB; AAX34366.
XX
PT Treating spinal cord injuries in a mammal - by inducing growth of
PT cerebrospinal projection axons using a recombinant vector for
PT expressing CST neurotrophin
XX
PS Disclosure; Fig 6; 49pp; English.
XX
CC The invention relates to a method of inducing cerebrospinal projection
CC (CST) axon growth in a mammal with a spinal cord injury that involves
CC a CST lesion by delivering a recombinant expression vector for CST
CC neurotrophin, such as this sequence - nerve growth factor beta. The
CC method is used to induce partial recovery of voluntary motor function
CC in a mammal after disruption of corticospinal projections in the spinal
CC cord.
XX
SQ Sequence 241 AA;

Query Match 98.5%; Score 648; DB 20; Length 241;
Best Local Similarity 99.2%; Pred. No. 5.9e-69;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241
```

RESULT 15
AAB67865
ID AAB67865 standard; Protein; 241 AA.
XX
AC AAB67865;
XX
DT 29-JUN-2001 (first entry)
XX
DE Amino acid sequence of a human polypeptide designated PTMA-8.
XX
KW PTMA; immune deficiency; infection; autoimmune disorder; wound closure;
KW connective tissue disease; multiple sclerosis; rheumatoid arthritis;
KW systemic lupus erythematosus; autoimmune pulmonary inflammation; ulcer;
KW Guillian-Barre syndrome; autoimmune thyroiditis; myasthenia gravis;
KW insulin dependent diabetes mellitus; graft-versus-host disease;
KW autoimmune inflammatory eye disease; gut protection; gut regeneration;
KW fibrosis; reperfusion injury; systemic cytokine damage.
XX
OS Homo sapiens.
XX
PN WO200123572-A2.
XX
PD 05-APR-2001.
XX
PF 29-SEP-2000; 2000WO-US41035.
XX
PR 30-SEP-1999; 99US-0156745.
PR 06-OCT-1999; 99US-0158942.
PR 13-OCT-1999; 99US-0159248.
PR 06-DEC-1999; 99US-0169344.
PR 29-JUN-2000; 2000US-0215048.
XX
PA (CURA-) CURAGEN CORP.
XX
PI Prayaga SK, Vernet C, Shimkets RA, Burgess C, Spytek KA;
XX
DR WPI; 2001-273512/28.
DR N-PSDB; AAF80462.
XX
PT Novel polypeptides termed PTMAX, and nucleic acids encoding PTMAX,
PT useful for detecting and treating diseases caused immune deficiencies -
XX
PS Claim 1; Page 20-22; 128pp; English.
XX
CC The present sequence represents a PTMA-8 (not defined) polypeptide. The
CC sequence is derived from clone AL049825. The polypeptide is 26958.5
CC daltons. PTMA polynucleotides and polypeptides are used in the
CC manufacture of a medicament for treating a syndrome associated with a
CC human disease, the disease selected from a pathology associated with
CC PTMA. They may be useful in the treatment of various immune deficiencies
CC and disorders. These immune deficiencies may be genetic or caused by
CC viral as well as bacterial or fungal infections or may result from
CC autoimmune disorders. Autoimmune disorders which may be treated using
CC PTMA include, for example, connective tissue disease, multiple sclerosis,
CC systemic lupus erythematosus, rheumatoid arthritis, autoimmune pulmonary
CC inflammation, Guillian-Barre syndrome, autoimmune thyroiditis, insulin
CC dependent diabetes mellitus, myasthenia gravis, graft-versus-host disease
CC and autoimmune inflammatory eye disease. Additionally PTMA may also be
CC useful to promote better or faster closure of non-healing wounds,
CC including pressure ulcers, ulcers associated with vascular insufficiency,
CC surgical and traumatic wounds. Furthermore, PTMA may also be useful for
CC gut protection or regeneration and treatment of lung or liver fibrosis,
CC reperfusion injury in various tissue, and conditions resulting from
CC systemic cytokine damage.
XX
SQ Sequence 241 AA;

Query Match 98.5%; Score 648; DB 22; Length 241;
Best Local Similarity 99.2%; Pred. No. 5.9e-69;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241
```

Search completed: December 2, 2002, 15:08:37
Job time : 24.1149 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 9.64596 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB	ID	Description
1	648	98.5	286	1	NGHUBM	nerve growth facto
2	640	97.3	229	2	I46614	nerve growth facto
3	628	95.4	125	2	A26312	nerve growth facto
4	599	91.0	245	2	I56570	beta-nerve growth
5	587	89.2	307	1	NGMSMG	nerve growth facto
6	581	88.3	243	2	A26311	nerve growth facto
7	580	88.1	241	2	JL0097	nerve growth facto
8	569	86.5	303	1	NGRTBA	nerve growth facto
9	563	85.6	235	2	S14481	nerve growth facto
10	488	74.2	243	2	I51193	nerve growth facto
11	481	73.1	117	2	S28161	nerve growth facto
12	449.5	68.3	116	1	NGNJXI	nerve growth facto
13	445.5	67.7	116	2	A58566	nerve growth facto
14	445.5	67.7	246	2	A59218	nerve growth facto
15	388	59.0	194	2	I51709	nerve growth facto
16	380.5	57.8	257	2	C40304	neurotrophin-3 pre
17	380.5	57.8	257	2	I50400	neurotrophin-3 pre
18	380.5	57.8	258	2	S09155	neurotrophin-3 pre
19	380.5	57.8	282	2	A35781	hippocampus-derive
20	348	52.9	286	2	S50855	neurotrophin-6 - s
21	324.5	49.3	247	2	A40304	brain-derived neur
22	324.5	49.3	249	2	S12555	brain-derived neur
23	324.5	49.3	249	2	B40304	brain-derived neur
24	324.5	49.3	252	2	A30361	brain-derived neur
25	320.5	48.7	114	2	I84765	brain-derived neur
26	318.5	48.4	248	2	JC6183	brain-derived neur
27	313.5	47.6	114	2	I50606	brain-derived neur
28	310.5	47.2	269	2	I51708	brain-derived neur
29	308.5	46.9	236	2	JH0400	neurotrophin-4 pre
30	307.5	46.7	210	2	A42687	neurotrophin-4 pre
31	305.5	46.4	209	2	B42687	neurotrophin-4 pre
32	304.5	46.3	114	2	I51599	brain-derived neur
33	76.5	11.6	835	2	C97322	probable alpha-ara
34	74.5	11.3	365	2	T08577	hypothetical prote
35	73	11.1	229	2	C69806	hypothetical prote
36	71.5	10.9	499	2	S53637	protein kinase clk
37	69.5	10.6	481	2	T27665	hypothetical prote
38	68.5	10.4	1254	2	E82064	conserved hypothet
39	68.5	10.4	4544	1	S02392	alpha-2-macroglobu
40	68.5	10.4	4545	1	S25111	alpha-2-macroglobu
41	68	10.3	518	2	B48088	beta-transducin re
42	67.5	10.3	361	2	T48029	hypothetical prote
43	67.5	10.3	554	2	A86211	hypothetical prote
44	67.5	10.3	1155	2	T40522	hypothetical prote
45	67.5	10.3	4543	1	A53102	alpha-2-macroglobu

ALIGNMENTS

RESULT 1
NGHUBM
nerve growth factor beta chain precursor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 19-Feb-1984 #sequence_revision 19-Feb-1984 #text_change 18-Jun-1999
C;Accession: A01399; S10253
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A01399
A;Molecule type: DNA
A;Residues: 1-286 <ULL>
R;Borsani, G.; Pizzuti, A.; Rugarli, E.I.; Falini, A.; Silani, V.; Sidoli, A.; Scarla
Nucleic Acids Res. 18, 4020, 1990
A;Title: cDNA sequence of human beta-NGF.
A;Reference number: S10253; MUID:90326556; PMID:2374737
A;Accession: S10253
A;Status: translation not shown
A;Molecule type: mRNA
A;Residues: 46-286 <BOR>
A;Cross-references: EMBL:X52599; NID:g29476; PIDN:CAA36832.1; PID:g29477
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: GDB:NGFB
A;Cross-references: GDB:120233; OMIM:162030
A;Map position: 1p13.1-1p13.1
A;Introns: 41/3
C;Complex: nerve growth factor is composed of two alpha chains, two beta chains, and
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; submandibular gland
F;1-166/Domain: signal sequence and propeptide (fragment) #status predicted <SIG>
F;167-284/Product: nerve growth factor beta chain #status predicted <MAT>
F;26,114,159,211/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;181-246,224-274,234-276/Disulfide bonds: #status predicted

Query Match 98.5%; Score 648; DB 1; Length 286;
Best Local Similarity 99.2%; Pred. No. 1.9e-61;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     167 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 226

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     227 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 286
```

RESULT 2
I46614

nerve growth factor B - pig (fragment)
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 21-Feb-1997 #sequence_revision 21-Feb-1997 #text_change 16-Jul-1999
C;Accession: I46614
R;Lahbib-Mansais, Y.; Mellink, C.; Yerle, M.; Gellin, J.
Cytogenet. Cell Genet. 67, 120-125, 1994
A;Title: A new marker (NGFB) on pig chromosome 4, isolated by using consensus sequence c
A;Reference number: I46614; MUID:94313891; PMID:8039422
A;Accession: I46614
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-229 <LAH>
A;Cross-references: GB:L31898; NID:g476732; PIDN:AAA21301.1; PID:g533771
C;Genetics:
A;Gene: NGFB
C;Superfamily: nerve growth factor beta chain

Query Match 97.3%; Score 640; DB 2; Length 229;
Best Local Similarity 97.5%; Pred. No. 1.1e-60;
Matches 117; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||:|||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     110 SSSHPVFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 169

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||| |||
Db     170 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRRA 229
```

RESULT 3
A26312
nerve growth factor beta chain precursor - bovine (fragment)
C;Species: Bos primigenius taurus (cattle)
C;Date: 19-Nov-1988 #sequence_revision 19-Nov-1988 #text_change 16-Jul-1999
C;Accession: A26312
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation of
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: A26312
A;Molecule type: mRNA
A;Residues: 1-125 <MEI>
A;Cross-references: GB:M26809; NID:g163419; PIDN:AAA30666.1; PID:g163420
C;Comment: Nerve growth factor stimulates neurite outgrowth from sympathetic and embryon
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; seminal vesicle
F;6-125/Product: nerve growth factor #status predicted <MAT>
F;20-85,63-113,73-115/Disulfide bonds: #status predicted

Query Match 95.4%; Score 628; DB 2; Length 125;
Best Local Similarity 94.2%; Pred. No. 1e-59;
Matches 113; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||:|||||||||||:||||||||||||||||||||||||||||||:||||||||||
Db       6 SSSHPVFHRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 65

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||:|||||||||||||||||||||||||||||||||||||||||  :||
Db      66 PNPVDSGCRGIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKTGQRA 125
```

RESULT 4
I56570
beta-nerve growth factor - rat (fragment)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C;Accession: I56570
R;Whittemore, S.R.; Friedman, P.L.; Larhammar, D.G.; Persson, H.; Gonzalez-Carvajal, M.;
J. Neurosci. Res. 20, 403-410, 1988
A;Title: Rat beta-nerve growth factor sequence and site of synthesis in the adult hippoc
A;Reference number: I56570; MUID:89037223; PMID:3184206
A;Accession: I56570
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-245 <RES>
A;Cross-references: GB:M36589; NID:g205691; PIDN:AAA41697.1; PID:g205692
C;Superfamily: nerve growth factor beta chain

Query Match 91.0%; Score 599; DB 2; Length 245;
Best Local Similarity 91.6%; Pred. No. 2.7e-56;
Matches 109; Conservative 4; Mismatches 6; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||||||||||||||||| ||||||||||:|||||||||
Db     126 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 185

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           ||||:|||||||||||||||||||||||| | ||||||||||||||||||| ||
Db     186 PNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARR 244
```

RESULT 5
NGMSMG
nerve growth factor beta chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Nov-1980 #sequence_revision 19-Feb-1984 #text_change 21-Jul-2000
C;Accession: A93301; A93305; A90366; I49689; I52891; A01400; I49690
R;Scott, J.; Selby, M.; Urdea, M.; Quiroga, M.; Bell, G.I.; Rutter, W.J.
Nature 302, 538-540, 1983
A;Title: Isolation and nucleotide sequence of a cDNA encoding the precursor of mouse
A;Reference number: A93301; MUID:83167518; PMID:6336309
A;Accession: A93301
A;Molecule type: mRNA
A;Residues: 1-307 <SCO>
A;Cross-references: GB:V00836; NID:g53364; PIDN:CAA24221.1; PID:g53365
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A93305
A;Molecule type: mRNA
A;Residues: 1-307 <ULL>
A;Cross-references: GB:K01759; NID:g200051; PIDN:AAA39820.1; PID:g387495
A;Note: these authors believe that Met-67 is probably the amino-terminal residue and
R;Angeletti, R.H.; Hermodson, M.A.; Bradshaw, R.A.
Biochemistry 12, 100-115, 1973
A;Title: Amino acid sequences of mouse 2.5S nerve growth factor. II. Isolation and ch
A;Reference number: A90366; MUID:73075048; PMID:4566923
A;Accession: A90366
A;Molecule type: protein
A;Residues: 188-216,'N',218-305 <ANG>
R;Selby, M.J.; Edwards, R.; Sharp, F.; Rutter, W.J.
Mol. Cell. Biol. 7, 3057-3064, 1987
A;Title: Mouse nerve growth factor gene: Structure and expression.
A;Reference number: I49689; MUID:88038855; PMID:3670305
A;Accession: I49689
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-307 <RES>
A;Cross-references: GB:M17298; NID:g193493; PIDN:AAA37687.1; PID:g467311
R;Ullrich, A.; Gray, A.; Berman, C.H.; Coussens, L.; Dull, T.J.
Cold Spring Harb. Symp. Quant. Biol. 48, 435-442, 1983
A;Title: Sequence homology of human and mouse beta-NGF subunit genes.
A;Reference number: I52891; MUID:84206565; PMID:6327169
A;Accession: I52891
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-307 <RE3>
A;Cross-references: GB:M14805; NID:g200053; PIDN:AAA39821.1; PID:g200054
C;Comment: The active molecule is a dimer of identical chains associated by noncovale
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: NGFB

```
A;Introns: 21/2; 62/3
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer
F;1-187/Domain: signal sequence and propeptide #status predicted <SIG>
F;188-305/Product: nerve growth factor beta chain #status experimental <MAT>
F;135,180/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;202-267,245-295,255-297/Disulfide bonds: #status experimental
F;232/Binding site: carbohydrate (Asn) (covalent) #status absent

  Query Match             89.2%;  Score 587;  DB 1;  Length 307;
  Best Local Similarity   90.8%;  Pred. No. 6.7e-55;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||||||||||||||||| || ||||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |||:|||||||||||||||||||||||| | |||||||||||||||||||||| ||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 306


RESULT 6
A26311
nerve growth factor beta chain precursor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 21-Jul-2000
C;Accession: A26311; A24857; S00127; S12532
R;Ebendal, T.; Larhammar, D.; Persson, H.
EMBO J. 5, 1483-1487, 1986
A;Title: Structure and expression of the chicken beta nerve growth factor gene.
A;Reference number: A26311; MUID:86300646; PMID:3017695
A;Accession: A26311
A;Molecule type: mRNA
A;Residues: 1-243 <EBE>
A;Cross-references: GB:X04003; NID:g63697; PIDN:CAA27633.1; PID:g1334740
R;Wion, D.; Perret, C.; Frechin, N.; Keller, A.; Behar, G.; Brachet, P.; Auffray, C.
FEBS Lett. 203, 82-86, 1986
A;Title: Molecular cloning of the avian beta-nerve growth factor gene: transcription in
A;Reference number: A24857; MUID:86248129; PMID:3720959
A;Accession: A24857
A;Molecule type: DNA
A;Residues: 118-243 <WIO>
A;Cross-references: GB:D00010; GB:N00010; GB:X04067; NID:g222840; PIDN:BAA00008.1; PID:g
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation of
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: S00127
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 121-243 <MEI>
A;Cross-references: GB:M26810; NID:g212446; PIDN:AAA48984.1; PID:g212447
R;Ibanez, C.F.; Hallboeoek, F.; Ebendal, T.; Persson, H.
EMBO J. 9, 1477-1483, 1990
A;Title: Structure-function studies of nerve growth factor: functional importance of hig
A;Reference number: S12532; MUID:90228346; PMID:2328722
A;Accession: S12532
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 126-243 <IBA>
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor
F;1-125/Domain: signal sequence #status predicted <SIG>
F;126-243/Product: nerve growth factor beta chain #status predicted <MAT>

  Query Match             88.3%;  Score 581;  DB 2;  Length 243;
  Best Local Similarity   88.0%;  Pred. No. 2.2e-54;
  Matches  103;  Conservative    9;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       3 SSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDP 62
           ::||: |||||||||||:|||||||||||||| |||||||||:||:||||||||||
Db     126 TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDP 185

Qy      63 NPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           || |||||||:|||||||||||||||||||:||||||||||||||||||||: |
Db     186 RPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 7
JL0097
nerve growth factor beta chain precursor - guinea pig
C;Species: Cavia porcellus (guinea pig)
C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 15-Mar-1996
C;Accession: JL0097
R;Schwarz, M.A.; Fisher, D.; Bradshaw, R.A.; Isackson, P.J.
J. Neurochem. 52, 1203-1209, 1989
A;Title: Isolation and sequence of a cDNA clone of beta-nerve growth factor from the
A;Reference number: JL0097; MUID:89177243; PMID:2926397
A;Accession: JL0097
A;Molecule type: mRNA
A;Residues: 1-241 <SCH>
A;Note: the authors translated the codon GCU for residue 214 as Asp
C;Genetics:
A;Gene: Beta-NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; hormone
F;1-121/Domain: propeptide #status predicted <PRO>
F;122-241/Product: nerve growth factor beta chain #status predicted <MAT>
F;146-154/Region: receptor binding #status predicted
F;69,114/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             88.1%;  Score 580;  DB 2;  Length 241;
  Best Local Similarity   87.4%;  Pred. No. 2.8e-54;
  Matches  104;  Conservative    7;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||| |||||||||||| || |||:||:||:||||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |:|||||||||||||||||||||||||||   ||||||||||||||||:||| ||
Db     182 PSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARR 240


RESULT 8
NGRTBA
nerve growth factor beta chain precursor - multimammate rat (Mastomys natalensis)
C;Species: Mastomys natalensis
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 18-Jun-1999
C;Accession: JT0343
R;Fahnestock, M.; Bell, R.A.
Gene 69, 257-264, 1988
A;Title: Molecular cloning of a cDNA encoding the nerve growth factor precursor from
A;Reference number: JT0343; MUID:89172070; PMID:3234767
A;Accession: JT0343
A;Molecule type: mRNA
A;Residues: 1-303 <FAH>
A;Cross-references: GB:M22748; NID:g202514; PIDN:AAA40599.1; PID:g202515
A;Note: it is uncertain whether Met-1 or Met-63 is the initiator
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer; submaxillary gland
F;184-301/Product: nerve growth factor beta chain #status predicted <MAT>
F;131,176,228/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;198-263,241-291,251-293/Disulfide bonds: #status predicted

  Query Match             86.5%;  Score 569;  DB 1;  Length 303;
  Best Local Similarity   87.4%;  Pred. No. 5.4e-53;
  Matches  104;  Conservative    6;  Mismatches    9;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|  |||||||||||||||||||| || |||||||||||:|||||||||
Db     184 SSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCRA 243

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |||:|||||||||||||||||||||||||| | :|||||||||||||:||| ||
```

```
Db    244 RNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRR 302


RESULT 9
S14481
nerve growth factor beta chain precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 16-Jul-1999
C;Accession: S14481
R;Carriero, F.; Campioni, M.; Cardinali, B.; Pierandrei-Amaldi, P.
submitted to the EMBL Data Library, October 1990
A;Description: Structure and expression of the nerve growth gene in Xenopus oocyte and e
A;Reference number: S14481
A;Accession: S14481
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-235 <CAR>
A;Cross-references: EMBL:X55716; NID:g64914; PIDN:CAA39249.1; PID:g64915
C;Superfamily: nerve growth factor beta chain

  Query Match             85.6%;  Score 563;  DB 2;  Length 235;
  Best Local Similarity   88.4%;  Pred. No. 1.8e-52;
  Matches   99;  Conservative    8;  Mismatches    5;  Indels    0;  Gaps    0;

Qy      5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
          ||: |:||:||||||||:|||:|| |||||||| ||||||||||||:|||||||||| |
Db    121 HPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDPKP 180

Qy     65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
          | |||||||:||||||||||||||||||:||||||||||||||||||||||
Db    181 VSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRK 232


RESULT 10
I51193
nerve growth factor precursor - many-banded krait
C;Species: Bungarus multicinctus (many-banded krait)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51193
R;Danse, J.M.; Garnier, J.M.
Growth Factors 8, 77-86, 1993
A;Title: Molecular cloning of a cDNA encoding a nerve growth factor precursor from the k
A;Reference number: I51193; MUID:93192074; PMID:7916740
A;Accession: I51193
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-243 <DAN>
A;Cross-references: GB:S56212; NID:g266298; PIDN:AAB25729.1; PID:g266299
C;Superfamily: nerve growth factor beta chain

  Query Match             74.2%;  Score 488;  DB 2;  Length 243;
  Best Local Similarity   73.0%;  Pred. No. 1.8e-44;
  Matches   84;  Conservative   18;  Mismatches   13;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          : :||: ::|| |||||:|||| :|| |||||| | |: :||:|| |::|||||||||:
Db    125 NENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFFETKCRN 184

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
          |||| ||||||||:|||||||| |||||||:| :|:|||||||||||||:|||
Db    185 PNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISRK 239


RESULT 11
S28161
nerve growth factor beta chain - Russell's viper
C;Species: Vipera russelli (Russell's viper)
C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997 #text_change 31-Oct-1997
C;Accession: S28161
R;Koyama, J.; Inoue, S.; Ikeda, K.; Hayashi, K.
Biochim. Biophys. Acta 1160, 287-292, 1992
A;Title: Purification and amino-acid sequence of a nerve growth factor from the venom of
A;Reference number: S28161; MUID:93120151; PMID:1477101
A;Accession: S28161
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-117 <KOY>
C;Superfamily: nerve growth factor beta chain

  Query Match             73.1%;  Score 481;  DB 2;  Length 117;
  Best Local Similarity   73.2%;  Pred. No. 4.5e-44;
  Matches   82;  Conservative   20;  Mismatches   10;  Indels    0;  Gaps    0;

Qy      5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
          ||: ::|||||||||||||| :|||||::|  | |: :||:||:|::|||||||::|||
Db      1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy     65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
          | |||||||:|||||||||| |||:||||:  ||:||||||:||||||:|||
Db     61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 12
NGNJXI
nerve growth factor - Indian cobra
C;Species: Naja naja naja (Indian cobra)
C;Date: 30-Nov-1980 #sequence_revision 25-Apr-1997 #text_change 17-Mar-2000
C;Accession: S13927; A01401
R;Inoue, S.; Oda, T.; Koyama, J.; Ikeda, K.; Hayashi, K.
FEBS Lett. 279, 38-40, 1991
A;Title: Amino acid sequences of nerve growth factors derived from cobra venoms.
A;Reference number: S13927; MUID:91138755; PMID:1995338
A;Accession: S13927
A;Molecule type: protein
A;Residues: 1-116 <INO>
A;Experimental source: venom
A;Note: the source is designated as Naja naja and referred to as Indian cobra, so we
R;Hogue-Angeletti, R.A.; Frazier, W.A.; Jacobs, J.W.; Niall, H.D.; Bradshaw, R.A.
Biochemistry 15, 26-34, 1976
A;Title: Purification, characterization, and partial amino acid sequence of nerve gro
A;Reference number: A01401; MUID:76114772; PMID:1247508
A;Accession: A01401
A;Molecule type: protein
A;Residues: 1-11,'P',13-14,'B',16,'TBT';20-21,'GV';23-27,'N',29-31;'AS',34,'S';36-48,
15-116 <HOG>
A;Experimental source: venom
A;Note: the source is designated as Naja naja and referred to as Indian cobra, so we
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathe
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;14-78,56-106,66-108/Disulfide bonds: #status predicted

  Query Match             68.3%;  Score 449.5;  DB 1;  Length 116;
  Best Local Similarity   70.5%;  Pred. No. 1e-40;
  Matches   79;  Conservative   15;  Mismatches   17;  Indels    1;  Gaps    1;

Qy      5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
          ||: : || ||||||| ||  |||||||||  | |:  ||::| |::|||||||||::|||
Db      3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 61

Qy     65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
            |||||||| |||||| | ||:|||||:| ||:|||||||||||||:::|
Db     62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIDTACVCVITKK 113


RESULT 13
A58566
nerve growth factor - Chinese cobra
C;Species: Naja naja atra (Chinese cobra)
C;Date: 16-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 25-Apr-1997
C;Accession: A58566
R;Oda, T.; Ohta, M.; Inoue, S.; Ikeda, K.; Furukawa, S.; Hayashi, K.
Biochem. Int. 19, 909-917, 1989
A;Title: Amino acid sequence of nerve growth factor purified from the venom of the Fo
A;Reference number: A58566; MUID:90147847; PMID:2619756
```

A;Accession: A58566
A;Molecule type: protein
A;Residues: 1-116 <ODA>
A;Experimental source: venom
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathetic
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;14-78,56-106,66-108/Disulfide bonds: #status predicted

Query Match 67.7%; Score 445.5; DB 2; Length 116;
Best Local Similarity 69.6%; Pred. No. 2.7e-40;
Matches 78; Conservative 16; Mismatches 17; Indels 1; Gaps 1;

```
Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: : || |||||||  ||  |||||||||  | |:  ||::| |::|||||||::|||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 61

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
             |||||||| |||||||  | ||:|||||:| ||:||||||:||||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 113
```

RESULT 14
A59218
nerve growth factor beta chain precursor - monocled cobra
C;Species: Naja naja kaouthia, Naja naja siamensis (monocled cobra)
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 31-Mar-2000
C;Accession: A59218; S13965
R;Selby, M.J.; Edwards, R.H.; Rutter, W.J.
J. Neurosci. Res. 18, 293-298, 1987
A;Title: Cobra nerve growth factor: structure and evolutionary comparison.
A;Reference number: A59218; MUID:88090976; PMID:3694712
A;Accession: A59218
A;Molecule type: mRNA
A;Residues: 1-246 <SEL>
R;Inoue, S.; Oda, T.; Koyama, J.; Ikeda, K.; Hayashi, K.
FEBS Lett. 279, 38-40, 1991
A;Title: Amino acid sequences of nerve growth factors derived from cobra venoms.
A;Reference number: S13927; MUID:91138755; PMID:1995338
A;Accession: S13965
A;Molecule type: protein
A;Residues: 131-246 <INO>
A;Experimental source: venom
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathetic
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;1-23/Domain: signal sequence #status predicted <SIG>
F;131-246/Product: nerve growth factor beta chain #status experimental <MAT>
F;144-208,186-236,196-238/Disulfide bonds: #status predicted

Query Match 67.7%; Score 445.5; DB 2; Length 246;
Best Local Similarity 69.6%; Pred. No. 6.3e-40;
Matches 78; Conservative 16; Mismatches 17; Indels 1; Gaps 1;

```
Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: : || |||||||  ||  |||||||||  | |:  ||::| |::|||||||::|||
Db     133 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 191

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
             |||||||| |||||||  | ||:|||||:| ||:||||||:||||||:::|
Db     192 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 243
```

RESULT 15
I51709
nerve growth factor beta chain precursor - southern platyfish
C;Species: Xiphophorus maculatus (southern platyfish)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51709; S26674
R;Gotz, R.; Raulf, F.; Schartl, M.
J. Neurochem. 59, 432-442, 1992
A;Title: Brain-derived neurotrophic factor is more highly conserved in structure and
A;Reference number: I51708; MUID:92333301; PMID:1629719
A;Accession: I51709
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-194 <GOT>
A;Cross-references: EMBL:X59941; NID:g65277; PIDN:CAA42566.1; PID:g65278
C;Genetics:
A;Gene: NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor
F;1-14/Domain: signal sequence #status predicted <SIG>
F;15-79/Domain: propeptide #status predicted <PRO>
F;80-194/Product: nerve growth factor beta chain #status predicted <MAT>
F;90-155,133-183,143-185/Disulfide bonds: #status predicted
F;99/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 59.0%; Score 388; DB 2; Length 194;
Best Local Similarity 66.1%; Pred. No. 6.5e-34;
Matches 72; Conservative 11; Mismatches 26; Indels 0; Gaps 0;

```
Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||| :|||:|||||||:|| |||| |||| ||  |||||   :|||||  |  |     |
Db      83 HRGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSR 142

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKA 117
           | |||::||||:|| :||||:|||    | ||| |||: |||||||||:
Db     143 CLGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191
```

Search completed: December 2, 2002, 15:13:58
Job time : 10.646 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 4.96483 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	648	98.5	241	1	NGF_HUMAN	P01138 homo sapien
2	640	97.3	229	1	NGF_PIG	Q29074 sus scrofa
3	618	93.9	231	1	NGF_BOVIN	P13600 bos taurus
4	599	91.0	241	1	NGF_RAT	P25427 rattus norv
5	587	89.2	241	1	NGF_MOUSE	P01139 mus musculu
6	581	88.3	243	1	NGF_CHICK	P05200 gallus gall
7	580	88.1	241	1	NGF_CAVPO	P19093 cavia porce
8	569	86.5	241	1	NGF_PRANA	P20675 praomys nat
9	563	85.6	231	1	NGF_XENLA	P21617 xenopus lae
10	488	74.2	243	1	NGF_BUNMU	P34128 bungarus mu
11	481	73.1	117	1	NGF_DABRR	P30894 daboia russ
12	446.5	67.9	116	1	NGF_NAJNA	P01140 naja naja (
13	442.5	67.2	116	1	NGF_NAJAT	P21377 naja atra (
14	388	59.0	194	1	NGF_XIPMA	P34129 xiphophorus
15	380.5	57.8	257	1	NT3_CHICK	P25433 gallus gall
16	380.5	57.8	257	1	NT3_HUMAN	P20783 homo sapien
17	380.5	57.8	258	1	NT3_MOUSE	P20181 mus musculu
18	380.5	57.8	258	1	NT3_RAT	P18280 rattus norv
19	379.5	57.7	260	1	NT3_XENLA	P25435 xenopus lae
20	376.5	57.2	257	1	NT3_FELCA	Q9tst2 felis silve
21	370.5	56.3	233	1	NT7_BRARE	O73797 brachydanio
22	365.5	55.5	140	1	NT7_CYPCA	O93474 cyprinus ca
23	325.5	49.5	255	1	BDNF_CAVPO	O70183 cavia porce
24	324.5	49.3	247	1	BDNF_HUMAN	P23560 homo sapien
25	324.5	49.3	247	1	BDNF_PROLO	O18755 procyon lot
26	324.5	49.3	247	1	BDNF_URSAR	O18752 ursus arcto
27	324.5	49.3	247	1	BDNF_URSML	O18753 ursus malay
28	324.5	49.3	249	1	BDNF_MOUSE	P21237 mus musculu
29	324.5	49.3	249	1	BDNF_RAT	P23363 rattus norv
30	324.5	49.3	252	1	BDNF_PIG	P14082 sus scrofa
31	320.5	48.7	114	1	BDNF_MACMU	Q06225 macaca mula
32	320.5	48.7	247	1	BDNF_FELCA	Q9tst3 felis silve
33	319.5	48.6	270	1	BDNF_CYPCA	Q90322 cyprinus ca
34	318.5	48.4	248	1	BDNF_BOVIN	Q95106 bos taurus
35	317.5	48.3	246	1	BDNF_CHICK	P25429 gallus gall
36	310.5	47.2	269	1	BDNF_XIPMA	Q02193 xiphophorus
37	308.5	46.9	236	1	NT4_XENLA	P24727 xenopus lae
38	307.5	46.7	210	1	NT5_HUMAN	P34130 homo sapien
39	305.5	46.4	209	1	NT5_RAT	P34131 rattus norv
40	304.5	46.3	114	1	BDNF_XENLA	P25432 xenopus lae
41	215	32.7	257	1	NT6B_HUMAN	P34133 homo sapien
42	214	32.5	186	1	NT6G_HUMAN	P34134 homo sapien
43	212	32.2	257	1	NT6A_HUMAN	P34132 homo sapien
44	190	28.9	42	1	NGF_VIPLE	P25428 vipera lebe
45	129	19.6	43	1	BDNF_RAJCL	P25430 raja clavat

ALIGNMENTS

RESULT 1
NGF_HUMAN
ID NGF_HUMAN STANDARD; PRT; 241 AA.
AC P01138;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Beta-nerve growth factor precursor (Beta-NGF).
GN NGFB.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83244969; PubMed=6688123;
RA Ullrich A., Gray A., Berman C., Dull T.J.;
RT "Human beta-nerve growth factor gene sequence highly homologous to
RT that of mouse.";
RL Nature 303:821-825(1983).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=84206565; PubMed=6327169;
RA Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT "Sequence homology of human and mouse beta-NGF subunit genes.";
RL Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN [3]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=90326556; PubMed=2374737;
RA Borsani G., Pizzuti A., Rugarli E.I., Falini A., Silani V.,
RA Sidoli A., Scarlato G., Barelle F.E.;
RT "cDNA sequence of human beta-NGF.";
RL Nucleic Acids Res. 18:4020-4020(1990).
RN [4]
RP SEQUENCE OF 178-219 FROM N.A.
RC TISSUE=Leukocyte;
RX MEDLINE=91222573; PubMed=2025430;
RA Hallboeoek F., Ibanez C.F., Persson H.;
RT "Evolutionary studies of the nerve growth factor family reveal a
RT novel member abundantly expressed in Xenopus ovary.";
RL Neuron 6:845-858(1991).
CC -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC EMBRYONIC SENSORY NEURONS.
CC -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC ---

```
CC   ----------------------------------------------------------------------
DR   EMBL; V01511; CAA24755.1; -.
DR   EMBL; M21062; AAA59931.1; -.
DR   EMBL; X52599; CAA36832.1; -.
DR   PIR; A01399; NGHUBM.
DR   PIR; S10253; S10253.
DR   HSSP; P01139; 1BET.
DR   Genew; HGNC:7808; NGFB.
DR   MIM; 162030; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26987 MW;  CF1DB4DC6B736B0F CRC64;

  Query Match             98.5%;  Score 648;  DB 1;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 4.4e-62;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 2
NGF_PIG
ID   NGF_PIG        STANDARD;      PRT;   229 AA.
AC   Q29074;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Large white; TISSUE=Blood;
RX   MEDLINE=94313891; PubMed=8039422;
RA   Lahbib-Mansais Y., Mellink C., Yerle M., Gellin J.;
RT   "A new marker (NGFB) on pig chromosome 4, isolated by using a
RT   consensus sequence conserved among species.";
RL   Cytogenet. Cell Genet. 67:120-125(1994).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; L31898; AAA21301.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER       1      1
FT   SIGNAL       <1      6       POTENTIAL.
FT   PROPEP        7    109       BY SIMILARITY.
FT   CHAIN       110    229       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    124    189       BY SIMILARITY.
FT   DISULFID    167    217       BY SIMILARITY.
FT   DISULFID    177    219       BY SIMILARITY.
FT   CARBOHYD     57     57       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    102    102       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    154    154       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   229 AA;  25275 MW;  FE8890771CBA3189 CRC64;

  Query Match             97.3%;  Score 640;  DB 1;  Length 229;
  Best Local Similarity   97.5%;  Pred. No. 3e-61;
  Matches  117;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||:||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     110 SSSHPVFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 169

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||| |||
Db     170 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRRA 229


RESULT 3
NGF_BOVIN
ID   NGF_BOVIN      STANDARD;      PRT;   231 AA.
AC   P13600; O18969;
DT   01-JAN-1990 (Rel. 13, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RX   MEDLINE=97430845; PubMed=9284944;
RA   Elduque C., Laurent P., Hayes H., Rodellar C., Leveziel H.,
RA   Zaragoza P.;
RT   "Assignment of the beta-nerve growth factor (NGFB) to bovine
RT   chromosome 3 band q23 by in situ hybridization.";
RL   Cytogenet. Cell Genet. 77:306-307(1997).
RN   [2]
RP   SEQUENCE OF 107-231 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
```

```
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y09566; CAA70759.1; -.
DR   EMBL; M26809; AAA30666.1; -.
DR   PIR; A26312; A26312.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER       1      1
FT   SIGNAL       <1      8       POTENTIAL.
FT   PROPEP        9    111       BY SIMILARITY.
FT   CHAIN       112    231       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    126    191       BY SIMILARITY.
FT   DISULFID    169    219       BY SIMILARITY.
FT   DISULFID    179    221       BY SIMILARITY.
FT   CARBOHYD    156    156       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT    118    118       L -> F (IN REF. 2).
FT   CONFLICT    161    161       R -> K (IN REF. 2).
FT   CONFLICT    230    231       AP -> RA (IN REF. 2).
SQ   SEQUENCE   231 AA;  25437 MW;  01605099291A418C CRC64;

  Query Match             93.9%;  Score 618;  DB 1;  Length 231;
  Best Local Similarity   96.5%;  Pred. No. 6.8e-59;
  Matches  111;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||: |||||||||||:||||||||||||||||||||||||||||||||||||||||||
Db     112 SSSHPVLHRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 171

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           |||||||||||:|||||||||||||||||||||||||||||||||||||||||||||
Db     172 PNPVDSGCRGIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 226


RESULT 4
NGF_RAT
ID   NGF_RAT        STANDARD;      PRT;   241 AA.
AC   P25427;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89037223; PubMed=3184206;
RA   Whittemore S.R., Friedman P.L., Larhammar D.G., Persson H.,
RA   Gonzalez-Carvajal M., Holets V.R.;
RT   "Rat beta-nerve growth factor sequence and site of synthesis in the
RT   adult hippocampus.";
RL   J. Neurosci. Res. 20:403-410(1988).
RN   [2]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M36589; AAA41697.1; ALT_INIT.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121       POTENTIAL.
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27009 MW;  665F42371563213D CRC64;

  Query Match             91.0%;  Score 599;  DB 1;  Length 241;
  Best Local Similarity   91.6%;  Pred. No. 7.6e-57;
  Matches  109;  Conservative    4;  Mismatches    6;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||||||||||||| |||||||||||:|||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           ||||:|||||||||||||||||||||| | |||||||||||||||||| ||
Db     182 PNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARR 240


RESULT 5
NGF_MOUSE
ID   NGF_MOUSE      STANDARD;      PRT;   241 AA.
AC   P01139; Q63864;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-JAN-1990 (Rel. 13, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167518; PubMed=6336309;
RA   Scott J., Selby M.J., Urdea M.S., Quiroga M., Bell G.I., Rutter W.J.;
RT   "Isolation and nucleotide sequence of a cDNA encoding the precursor
RT   of mouse nerve growth factor.";
RL   Nature 302:538-540(1983).
RN   [2]
```

```
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83244969; PubMed=6688123;
RA   Ullrich A., Gray A., Berman C., Dull T.J.;
RT   "Human beta-nerve growth factor gene sequence highly homologous to
RT   that of mouse.";
RL   Nature 303:821-825(1983).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=84206565; PubMed=6327169;
RA   Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT   "Sequence homology of human and mouse beta-NGF subunit genes.";
RL   Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6; TISSUE=Submaxillary gland;
RX   MEDLINE=88038855; PubMed=3670305;
RA   Selby M.J., Edwards R., Sharp F., Rutter W.J.;
RT   "Mouse nerve growth factor gene: structure and expression.";
RL   Mol. Cell. Biol. 7:3057-3064(1987).
RN   [5]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93264918; PubMed=1284621;
RA   Yamamoto T., Yamakuni T., Okabe N., Amano T.;
RT   "Production and secretion of nerve growth factor by clonal striated
RT   muscle cell line, G8-1.";
RL   Neurochem. Int. 21:251-258(1992).
RN   [6]
RP   SEQUENCE OF 122-239.
RX   MEDLINE=73075048; PubMed=4566923;
RA   Angeletti R.H., Hermodson M.A., Bradshaw R.A.;
RT   "Amino acid sequences of mouse 2.5S nerve growth factor. II.
RT   Isolation and characterization of the thermolytic and peptic peptides
RT   and the complete covalent structure.";
RL   Biochemistry 12:100-115(1973).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=92065986; PubMed=1956407;
RA   McDonald N.Q., Lapatto R., Murray-Rust J., Gunning J., Wlodawer A.,
RA   Blundell T.L.;
RT   "New protein fold revealed by a 2.3-A resolution crystal structure of
RT   nerve growth factor.";
RL   Nature 354:411-414(1991).
RN   [8]
RP   X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
RX   MEDLINE=94260545; PubMed=8201620;
RA   Holland D.R., Cousens L.S., Meng W., Matthews B.W.;
RT   "Nerve growth factor in different crystal forms displays structural
RT   flexibility and reveals zinc binding sites.";
RL   J. Mol. Biol. 239:385-400(1994).
RN   [9]
RP   X-RAY CRYSTALLOGRAPHY (3.15 ANGSTROMS) OF 7S COMPLEX.
RC   STRAIN=Swiss Webster; TISSUE=Submaxillary gland;
RX   MEDLINE=98035451; PubMed=9351801;
RA   Bax B., Blundell T.L., Murray-Rust J., McDonald N.Q.;
RT   "Structure of mouse 7S NGF: a complex of nerve growth factor with
RT   four binding proteins.";
RL   Structure 5:1275-1285(1997).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M35075; AAA39818.1; ALT_INIT.
DR   EMBL; V00836; CAA24221.1; ALT_INIT.
DR   EMBL; K01759; AAA39820.1; ALT_INIT.
DR   EMBL; M14805; AAA39821.1; ALT_INIT.
DR   EMBL; M17298; AAA37687.1; ALT_INIT.
DR   EMBL; M17296; AAA37687.1; JOINED.
DR   EMBL; M17297; AAA37687.1; JOINED.
DR   EMBL; S62089; CAB32081.2; ALT_SEQ.
DR   PIR; A01400; NGMSMG.
DR   PDB; 1BET; 31-MAY-94.
DR   PDB; 1BTG; 08-MAR-96.
DR   PDB; 1SGF; 27-MAY-98.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; 3D-structure.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201
FT   DISULFID   179    229
FT   DISULFID   189    231
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT   233    241       LSRKATRRG -> CSAGRLQEEA (IN REF. 5).
SQ   SEQUENCE   241 AA;  27076 MW;  164465E1DC550081 CRC64;

  Query Match             89.2%;  Score 587;  DB 1;  Length 241;
  Best Local Similarity   90.8%;  Pred. No. 1.5e-55;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||||||||||||||||| || ||||||||||||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |||:|||||||||||||||||||||| | ||||||||||||||||||| ||
Db     182 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 240


RESULT 6
NGF_CHICK
ID   NGF_CHICK      STANDARD;      PRT;   243 AA.
AC   P05200;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86300646; PubMed=3017695;
RA   Ebendahl T., Larhammar D., Persson H.;
RT   "Structure and expression of the chicken beta nerve growth factor
RT   gene.";
RL   EMBO J. 5:1483-1487(1986).
RN   [2]
RP   SEQUENCE OF 118-243 FROM N.A.
RX   MEDLINE=86248129; PubMed=3720959;
RA   Wion D., Perret C., Frechin N., Keller A., Behar G., Brachet P.,
RA   Auffray C.;
RT   "Molecular cloning of the avian beta-nerve growth factor gene:
RT   transcription in brain.";
RL   FEBS Lett. 203:82-86(1986).
```

```
RN   [3]
RP   SEQUENCE OF 121-243 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
RN   [4]
RP   SEQUENCE OF 181-222 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X04003; CAA27633.1; ALT_INIT.
DR   EMBL; X04067; CAA27703.1; -.
DR   EMBL; M26810; AAA48984.1; -.
DR   PIR; A24857; A24857.
DR   PIR; A26311; A26311.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23    125
FT   CHAIN       126    243       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27138 MW;  74C306CB2079DA07 CRC64;

  Query Match             88.3%;  Score 581;  DB 1;  Length 243;
  Best Local Similarity   88.0%;  Pred. No. 6.4e-55;
  Matches  103;  Conservative    9;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       3 SSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDP 62
           ::||: |||||||||||:|||||||||||||| |||||||||:||:||||||||||
Db     126 TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDP 185

Qy      63 NPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           || |||||||:|||||||||||||||||:|||||||||||||||||: |
Db     186 RPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 7
NGF_CAVPO
ID   NGF_CAVPO      STANDARD;      PRT;   241 AA.
AC   P19093;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Prostate;
RX   MEDLINE=89177243; PubMed=2926397;
RA   Schwarz M.A., Fisher D., Bradshaw R.A., Isackson P.J.;
RT   "Isolation and sequence of a cDNA clone of beta-nerve growth factor
RT   from the guinea pig prostate gland.";
RL   J. Neurochem. 52:1203-1209(1989).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; JL0097; JL0097.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26821 MW;  2F4E26B197804BF4 CRC64;

  Query Match             88.1%;  Score 580;  DB 1;  Length 241;
  Best Local Similarity   87.4%;  Pred. No. 8.1e-55;
  Matches  104;  Conservative    7;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||| |||||||||||| || |||:||:||:|||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |:|||||||||||||||||||||||||||||   ||||||||||||||||:||| ||
Db     182 PSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARR 240


RESULT 8
NGF_PRANA
ID   NGF_PRANA      STANDARD;      PRT;   241 AA.
AC   P20675;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Praomys natalensis (African soft-furred rat) (Mastomys natalensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC   Mastomys.
OX   NCBI_TaxID=10112;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89172070; PubMed=3234767;
RA   Fahnestock M., Bell R.A.;
RT   "Molecular cloning of a cDNA encoding the nerve growth factor
RT   precursor from Mastomys natalensis.";
RL   Gene 69:257-264(1988).
```

```
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M22748; AAA40599.1; ALT_INIT.
DR   PIR; JT0343; NGRTBA.
DR   HSSP; P01139; 1BTG.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27035 MW;  8BFBB207A1FFB2F7 CRC64;

  Query Match             86.5%;  Score 569;  DB 1;  Length 241;
  Best Local Similarity   87.4%;  Pred. No. 1.2e-53;
  Matches  104;  Conservative    6;  Mismatches    9;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|  |||||||||||||||||||||| || ||||||||||||:|||||||||
Db     122 SSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCRA 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |||:|||||||||||||||||||||||| | :|||||||||||||||:||| ||
Db     182 RNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRR 240


RESULT 9
NGF_XENLA
ID   NGF_XENLA      STANDARD;      PRT;   231 AA.
AC   P21617;
DT   01-MAY-1991 (Rel. 18, Created)
DT   15-DEC-1998 (Rel. 37, Last sequence update)
DT   15-DEC-1998 (Rel. 37, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91362944; PubMed=1888511;
RA   Carriero F., Campioni M., Cardinali B., Pierandrei-Amaldi P.;
RT   "Structure and expression of the nerve growth factor gene in Xenopus
RT   oocytes and embryos.";
RL   Mol. Reprod. Dev. 29:313-322(1991).
RN   [2]
RP   SEQUENCE OF 170-211 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X55716; CAA39249.1; ALT_INIT.
DR   PIR; S14481; S14481.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    114       POTENTIAL.
FT   CHAIN      115    231       NERVE GROWTH FACTOR.
FT   DISULFID   128    193       BY SIMILARITY.
FT   DISULFID   171    221       BY SIMILARITY.
FT   DISULFID   181    223       BY SIMILARITY.
FT   CARBOHYD    63     63       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   107    107       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   158    158       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   231 AA;  26416 MW;  72A04E7D00B858C5 CRC64;

  Query Match             85.6%;  Score 563;  DB 1;  Length 231;
  Best Local Similarity   88.4%;  Pred. No. 5.1e-53;
  Matches   99;  Conservative    8;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: |:||:|||||||:|||:|| |||||||| ||||||||||||:|||||||| |
Db     117 HPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDPKP 176

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           | |||||||:||||||||||||||||:|||||||||||||||||||||||||
Db     177 VSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRK 228


RESULT 10
NGF_BUNMU
ID   NGF_BUNMU      STANDARD;      PRT;   243 AA.
AC   P34128;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Bungarus multicinctus (Many-banded krait).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Bungarinae; Bungarus.
OX   NCBI_TaxID=8616;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom gland;
RX   MEDLINE=93192074; PubMed=7916740;
RA   Danse J.M., Garnier J.M.;
```

```
RT   "Molecular cloning of a cDNA encoding a nerve growth factor precursor
RT   from the krait, Bungarus multicinctus.";
RL   Growth Factors 8:77-86(1993).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S56212; AAB25729.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    125
FT   CHAIN       126    243       NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27514 MW;  E33F64B142179A08 CRC64;

  Query Match             74.2%;  Score 488;  DB 1;  Length 243;
  Best Local Similarity   73.0%;  Pred. No. 5.5e-45;
  Matches   84;  Conservative   18;  Mismatches   13;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           : :||: ::|| ||||:|||| :|| ||||||  | |: :||:|| |::||||||||:
Db     125 NENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFFETKCRN 184

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           |||| ||||||||:|||||||| |||||||:| :|:||||||||||||:|||
Db     185 PNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISRK 239


RESULT 11
NGF_DABRR
ID   NGF_DABRR      STANDARD;      PRT;   117 AA.
AC   P30894;
DT   01-JUL-1993 (Rel. 26, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Daboia russelli russelli (Russell's viper) (Vipera russelli russelli).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Viperinae; Daboia.
OX   NCBI_TaxID=31159;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=93120151; PubMed=1477101;
RA   Koyama J.-I., Inoue S., Ikeda K., Hayashi K.;
RT   "Purification and amino-acid sequence of a nerve growth factor from
RT   the venom of Vipera russelli russelli.";
RL   Biochim. Biophys. Acta 1160:287-292(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; S28161; S28161.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Glycoprotein; Growth factor.
FT   DISULFID     12     77       BY SIMILARITY.
FT   DISULFID     55    105       BY SIMILARITY.
FT   DISULFID     65    107       BY SIMILARITY.
FT   CARBOHYD     21     21       N-LINKED (GLCNAC. . .).
SQ   SEQUENCE   117 AA;  13283 MW;  A64559C5FEC11F66 CRC64;

  Query Match             73.1%;  Score 481;  DB 1;  Length 117;
  Best Local Similarity   73.2%;  Pred. No. 1.4e-44;
  Matches   82;  Conservative   20;  Mismatches   10;  Indels    0;  Gaps    0;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: ::|||||||||||||| :|||||::|  | |: :||:||:|::||||||||::|||
Db       1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
             | |||||||:|||||||||| |||:||||:  ||:||||||:||||||:|||
Db      61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 12
NGF_NAJNA
ID   NGF_NAJNA      STANDARD;      PRT;   116 AA.
AC   P01140;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-MAY-1991 (Rel. 18, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Naja naja (Indian cobra).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Elapinae; Naja.
OX   NCBI_TaxID=35670;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=91138755; PubMed=1995338;
RA   Inoue S., Oda T., Koyama J., Ikeda K., Hayashi K.;
RT   "Amino acid sequences of nerve growth factors derived from cobra
RT   venoms.";
RL   FEBS Lett. 279:38-40(1991).
RN   [2]
RP   PRELIMINARY SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=76114772; PubMed=1247508;
RA   Hogue-Angeletti R.A., Frazier W.A., Jacobs J.W., Niall H.D.,
RA   Bradshaw R.A.;
RT   "Purification, characterization, and partial amino acid sequence of
RT   nerve growth factor from cobra venom.";
RL   Biochemistry 15:26-34(1976).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; A01401; NGNJXI.
DR   PIR; S13927; S13927.
```

```
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   DISULFID     14     78       BY SIMILARITY.
FT   DISULFID     56    106       BY SIMILARITY.
FT   DISULFID     66    108       BY SIMILARITY.
SQ   SEQUENCE   116 AA;  13022 MW;  DAB346B1093E7E06 CRC64;

  Query Match             67.9%;  Score 446.5;  DB 1;  Length 116;
  Best Local Similarity   69.6%;  Pred. No. 6.6e-41;
  Matches   78;  Conservative   16;  Mismatches   17;  Indels    1;  Gaps    1;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: : || ||||||| ||  |||||||||  | |:  ||::| |:::|||||||::|||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKEYFFETKCKNPNP 61

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           |||||||| ||||||| | ||:||||||:| ||:||||||||||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIDTACVCVITKK 113


RESULT 13
NGF_NAJAT
ID   NGF_NAJAT      STANDARD;      PRT;   116 AA.
AC   P21377;
DT   01-MAY-1991 (Rel. 18, Created)
DT   01-MAY-1991 (Rel. 18, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Naja atra (Chinese cobra), and
OS   Naja naja kaouthia (Monocled cobra) (Naja naja siamensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Elapinae; Naja.
OX   NCBI_TaxID=8656, 8649;
RN   [1]
RP   SEQUENCE.
RC   SPECIES=N.n.atra; TISSUE=Venom;
RX   MEDLINE=90147847; PubMed=2619756;
RA   Oda T., Ohta M., Inoue S., Ikeda K., Furukawa S., Hayashi K.;
RT   "Amino acid sequence of nerve growth factor purified from the venom
RT   of the Formosan cobra Naja naja atra.";
RL   Biochem. Int. 19:909-917(1989).
RN   [2]
RP   SEQUENCE.
RC   SPECIES=N.n.kaouthia; TISSUE=Venom;
RX   MEDLINE=91138755; PubMed=1995338;
RA   Inoue S., Oda T., Koyama J., Ikeda K., Hayashi K.;
RT   "Amino acid sequences of nerve growth factors derived from cobra
RT   venoms.";
RL   FEBS Lett. 279:38-40(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; S13965; S13965.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   DISULFID     14     78       BY SIMILARITY.
FT   DISULFID     56    106       BY SIMILARITY.
FT   DISULFID     66    108       BY SIMILARITY.
SQ   SEQUENCE   116 AA;  13064 MW;  DAB35421093F3B06 CRC64;

  Query Match             67.2%;  Score 442.5;  DB 1;  Length 116;
  Best Local Similarity   68.8%;  Pred. No. 1.8e-40;
  Matches   77;  Conservative   17;  Mismatches   17;  Indels    1;  Gaps    1;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: : || ||||||| ||  |||||||||  | |:  ||::| |:::|||||||::|||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKEYFFETKCKNPNP 61

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           |||||||| ||||||| | ||:||||||:| ||:||||||:||||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 113


RESULT 14
NGF_XIPMA
ID   NGF_XIPMA      STANDARD;      PRT;   194 AA.
AC   P34129;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xiphophorus maculatus (Southern platyfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92333301; PubMed=1629719;
RA   Gotz R., Raulf F., Schartl M.;
RT   "Brain-derived neurotrophic factor is more highly conserved in
RT   structure and function than nerve growth factor during vertebrate
RT   evolution.";
RL   J. Neurochem. 59:432-442(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X59941; CAA42566.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; FALSE_NEG.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     30       POTENTIAL.
FT   PROPEP      31     79
```

```
FT   CHAIN        80    194       NERVE GROWTH FACTOR.
FT   DISULFID     90    155       BY SIMILARITY.
FT   DISULFID    133    183       BY SIMILARITY.
FT   DISULFID    143    185       BY SIMILARITY.
SQ   SEQUENCE   194 AA;  21596 MW;  0369E0F4A51147AE CRC64;

  Query Match             59.0%;  Score 388;  DB 1;  Length 194;
  Best Local Similarity   66.1%;  Pred. No. 2.1e-34;
  Matches   72;  Conservative   11;  Mismatches   26;  Indels    0;  Gaps    0;

Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||| :|||:|||||||:|| |||| |||| ||  |||||   :|||||| |  |    |
Db      83 HRGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSR 142

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKA 117
           | |||::||||:|| :||||:|||    | ||| |||: |||||||||:
Db     143 CLGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191


RESULT 15
NT3_CHICK
ID   NT3_CHICK      STANDARD;      PRT;   257 AA.
AC   P25433;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-DEC-1992 (Rel. 24, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93091238; PubMed=1457809;
RA   Maisonpierre P., Belluscio L., Conover J.C., Yancopoulos G.D.;
RT   "Gene sequences of chicken BDNF and NT-3.";
RL   DNA Seq. 3:49-54(1992).
RN   [2]
RP   SEQUENCE OF 194-236 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M83378; AAA68880.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217       BY SIMILARITY.
FT   DISULFID    195    246       BY SIMILARITY.
FT   DISULFID    205    248       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29701 MW;  EE043BA2A005C1E7 CRC64;

  Query Match             57.8%;  Score 380.5;  DB 1;  Length 257;
  Best Local Similarity   59.8%;  Pred. No. 1.8e-33;
  Matches   67;  Conservative   19;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||||:||||| |:|| ||::| ||:| :| |||||:   ||  :|||:||:|::  || :|
Db     145 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAKPVKNG 204

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 119
           ||||| ||||| | |: |:|:|||  :  |   ||:|||||:||| ||||  |
Db     205 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 256


Search completed: December  2, 2002, 15:12:42
Job time : 4.96483 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 18.7245 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	648	98.5	241	4	Q9P2Q8	Q9p2q8 homo sapien
2	648	98.5	241	4	Q9UKL8	Q9ukl8 homo sapien
3	648	98.5	241	6	Q9N2F1	Q9n2f1 pan troglod
4	648	98.5	241	6	Q9N2F0	Q9n2f0 gorilla gor
5	648	98.5	241	6	Q9N2E9	Q9n2e9 pongo pygma
6	640	97.3	241	4	Q96P60	Q96p60 homo sapien
7	578	87.8	217	6	Q9N183	Q9n183 macaca fusc
8	529	80.4	294	11	Q91XB4	Q91xb4 mus musculu
9	499	75.8	241	13	Q90W38	Q90w38 bothrops ja
10	492	74.8	241	13	Q9DEZ9	Q9dez9 crotalus du
11	459	69.8	87	6	Q9TTC3	Q9ttc3 cervus elap
12	458	69.6	87	4	Q9P2Z4	Q9p2z4 homo sapien
13	348	52.9	286	13	Q91988	Q91988 xiphophorus
14	338.5	51.4	241	6	Q9N182	Q9n182 macaca fusc
15	324.5	49.3	153	11	Q9CYL3	Q9cyl3 mus musculu
16	324.5	49.3	247	6	O97759	O97759 ailurus ful
17	324.5	49.3	249	11	Q8VHH4	Q8vhh4 mus musculu
18	318.5	48.4	246	13	Q8QG76	Q8qg76 japalura sp
19	317.5	48.3	177	13	Q9I8L2	Q9i812 poephila gu
20	314.5	47.8	270	13	Q9YH42	Q9yh42 brachydanio
21	312.5	47.5	246	13	Q8QG75	Q8qg75 phrynocepha
22	304.5	46.3	246	13	Q8QG74	Q8qg74 cyclophiops
23	296.5	45.1	247	13	Q8QG77	Q8qg77 tylototrito
24	291.5	44.3	101	6	Q9TT22	Q9tt22 macaca fusc
25	283	43.0	324	13	Q9XY95	Q9xy95 lampetra fl
26	271.5	41.3	186	12	Q9J5D9	Q9j5d9 fowlpox vir
27	224	34.0	42	6	O02802	O02802 trichosurus
28	223	33.9	85	6	O02790	O02790 macropus fu
29	217	33.0	85	6	O13114	O13114 isoodon mac
30	217	33.0	85	6	O13122	O13122 tarsipes ro
31	217	33.0	85	6	O02795	O02795 ornithorhyn
32	217	33.0	85	6	O02798	O02798 petaurus br
33	217	33.0	85	6	O13104	O13104 cercartetus
34	217	33.0	85	6	O02792	O02792 notoryctes
35	217	33.0	85	6	O13105	O13105 dasyuroides
36	217	33.0	85	6	O02801	O02801 tachyglossu
37	216	32.8	85	6	O02803	O02803 trichosurus
38	211	32.1	42	6	O02794	O02794 ornithorhyn
39	209	31.8	42	6	O02800	O02800 tachyglossu
40	166	25.2	42	13	O13118	O13118 protopterus
41	156	23.7	185	11	Q99NV9	Q99nv9 pedetes cap
42	156	23.7	186	6	Q9BFL0	Q9bfl0 chaetophrac
43	155	23.6	184	6	Q9BFJ5	Q9bfj5 tupaia mino
44	155	23.6	185	6	Q9BFK6	Q9bfk6 talpa altai
45	155	23.6	185	6	Q9BFK5	Q9bfk5 condylura c

ALIGNMENTS

RESULT 1
Q9P2Q8
ID Q9P2Q8 PRELIMINARY; PRT; 241 AA.
AC Q9P2Q8;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Beta-nerve growth factor (Fragment).
GN BETA-NGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RA Kitano T., Kobayakawa H., Saitou N.;
RT "Silver Project.";
RL Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AB037517; BAA90437.1; -.
DR HSSP; P01139; 1BET.
DR InterPro; IPR002072; NGF.
DR Pfam; PF00243; NGF; 1.
DR PRINTS; PR00268; NGF.
DR ProDom; PD002052; NGF; 1.
DR SMART; SM00140; NGF; 1.
DR PROSITE; PS00248; NGF_1; 1.
DR PROSITE; PS50270; NGF_2; 1.
FT NON_TER 241 241
SQ SEQUENCE 241 AA; 26998 MW; D5531ED825D96C14 CRC64;

Query Match 98.5%; Score 648; DB 4; Length 241;
Best Local Similarity 99.2%; Pred. No. 2.4e-65;
Matches 119; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
```

```
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 2
Q9UKL8
ID   Q9UKL8      PRELIMINARY;      PRT;   241 AA.
AC   Q9UKL8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor B.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99256269; PubMed=10322959;
RA   Tong Y., Wang H., Chen W.;
RT   "Cloning and sequencing of the gene for premature beta nerve growth
RT   factor.";
RL   Chung Kuo Ying Yung Sheng Li Hsueh Tsa Chih 13:316-318(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Tong Y., Wang H.;
RL   Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF150960; AAD55975.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26959 MW;  619DFC65EB3BD671 CRC64;

  Query Match             98.5%;  Score 648;  DB 4;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-65;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 3
Q9N2F1
ID   Q9N2F1      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CHIMP-220;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037518; BAA90438.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26868 MW;  B39FAA8912C00A0B CRC64;

  Query Match             98.5%;  Score 648;  DB 6;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-65;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 4
Q9N2F0
ID   Q9N2F0      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Gorilla gorilla (gorilla).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Gorilla.
OX   NCBI_TaxID=9593;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=GORILLA-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037519; BAA90439.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26915 MW;  6F54D163C384BB34 CRC64;

  Query Match             98.5%;  Score 648;  DB 6;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-65;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 5
Q9N2E9
ID   Q9N2E9      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2E9;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
```

```
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pongo pygmaeus (Orangutan).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pongo.
OX   NCBI_TaxID=9600;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=ORAN-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037520; BAA90440.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26876 MW;  DFC168E7E4E01F15 CRC64;

  Query Match             98.5%;  Score 648;  DB 6;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-65;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 6
Q96P60
ID   Q96P60      PRELIMINARY;      PRT;   241 AA.
AC   Q96P60;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor beta.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhang Y., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF411526; AAL05874.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26964 MW;  745216485C21E558 CRC64;

  Query Match             97.3%;  Score 640;  DB 4;  Length 241;
  Best Local Similarity   97.5%;  Pred. No. 2e-64;
  Matches  117;  Conservative    3;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||:||||||:||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVSINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||:||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACMCVLSRKAVRRA 241


RESULT 7
Q9N183
ID   Q9N183      PRELIMINARY;      PRT;   217 AA.
AC   Q9N183;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta nerve growth factor (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF222682; AAF33790.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     217    217
SQ   SEQUENCE   217 AA;  24240 MW;  36A5A2D1DFCD8D5C CRC64;

  Query Match             87.8%;  Score 578;  DB 6;  Length 217;
  Best Local Similarity   99.1%;  Pred. No. 1.8e-57;
  Matches  105;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     112 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 171

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDT 107
           |||||||||||||||||||||||||||||||||||||||||||||||
Db     172 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDT 217


RESULT 8
Q91XB4
ID   Q91XB4      PRELIMINARY;      PRT;   294 AA.
AC   Q91XB4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Similar to nerve growth factor, beta.
GN   NGFB.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=SALIVARY GLAND;
RA   Strausberg R.;
```

```
RL   Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; BC011123; AAH11123.1; -.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   294 AA;  32326 MW;  9EE7402DAC899229 CRC64;

  Query Match             80.4%;  Score 529;  DB 11;  Length 294;
  Best Local Similarity   90.7%;  Pred. No. 9.3e-52;
  Matches   97;  Conservative    3;  Mismatches    7;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||:||:|| |||||||||||||||||||||||||| || ||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTA 108
           |||:|||||||||||||||||||||||| | ||||||||||||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTA 294


RESULT 9
Q90W38
ID   Q90W38      PRELIMINARY;      PRT;   241 AA.
AC   Q90W38;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Putative neurotrophic growth factor.
GN   NGF.
OS   Bothrops jararacussu (Jararacussu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Bothrops.
OX   NCBI_TaxID=8726;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Kashima S., Pereira J.O., Astolfi Filho S., Soares A.M.,
RA   Cintra A.C.O., Giglio J.R., Franca S.C.;
RT   "Molecular cloning and cDNA sequence of a nerve growth factor
RT   precursor from Bothrops jararacussu venomous gland.";
RL   Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY007318; AAG12169.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27161 MW;  AC57F724A6531A8F CRC64;

  Query Match             75.8%;  Score 499;  DB 13;  Length 241;
  Best Local Similarity   75.9%;  Pred. No. 1.8e-48;
  Matches   85;  Conservative   19;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||: :|||:||||||:||| :|||||||:|  | |: :|||||:|::|||||||||:|||
Db     125 HPVHNRGEYSVCDSVNVWVANKTTATDIRGNVVTVMVDVNINNNVYKQYFFETKCRNPNP 184

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           | :||||||::|||||||||:||||||||:| ||:|||||||:|||||:|||
Db     185 VPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDTACVCVISRK 236


RESULT 10
Q9DEZ9
ID   Q9DEZ9      PRELIMINARY;      PRT;   241 AA.
AC   Q9DEZ9;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Nerve growth factor.
OS   Crotalus durissus terrificus (South American rattlesnake).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Crotalus.
OX   NCBI_TaxID=8732;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Hayashi M.A.F., Radis-Baptista G., Yamane T., Camargo A.C.M.;
RT   "Cloning and sequence of a cDNA coding for a rattlesnake (Crotalus
RT   durissus terrificus) nerve growth factor.";
RL   Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF306533; AAG30924.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27118 MW;  4A261F42C5D6FF3F CRC64;

  Query Match             74.8%;  Score 492;  DB 13;  Length 241;
  Best Local Similarity   75.0%;  Pred. No. 1.1e-47;
  Matches   84;  Conservative   19;  Mismatches    9;  Indels    0;  Gaps    0;

Qy       5 HPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNP 64
           ||:  |||:||||||:||| :|||||||:|  | |: :|||||:|::|||||||||:|||
Db     125 HPVHKRGEYSVCDSVNVWVANKTTATDIRGNLVTVMVDVNINNNVYKQYFFETKCRNPNP 184

Qy      65 VDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 116
           | :||||||::|||||||||:||||||||:| ||:|||||||:|||||:|||
Db     185 VPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDSACVCVISRK 236


RESULT 11
Q9TTC3
ID   Q9TTC3      PRELIMINARY;      PRT;    87 AA.
AC   Q9TTC3;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Beta nerve growth factor (Fragment).
GN   NGF.
OS   Cervus elaphus scotticus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea;
OC   Cervidae; Cervinae; Cervus.
OX   NCBI_TaxID=109627;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Robertson T.M., Stanton J.L., Clark D.E., Sheard P.W., Harris A.J.,
RA   Suttie J.M.;
RT   "NGF expression in Antler.";
RL   Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF145043; AAF17235.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      87     87
SQ   SEQUENCE   87 AA;  9876 MW;  17EE06E49AF7A0A4 CRC64;

  Query Match             69.8%;  Score 459;  DB 6;  Length 87;
  Best Local Similarity   95.4%;  Pred. No. 1.9e-44;
  Matches   83;  Conservative    2;  Mismatches    2;  Indels    0;  Gaps    0;
```

```
Qy      18 SVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSGCRGIDSKHW 77
           ||||||||||||||||||||||||||||||||:|||||||||||||||| ||||||:|||
Db       1 SVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDGGCRGIDAKHW 60

Qy      78 NSYCTTTHTFVKALTMDGKQAAWRFIR 104
           ||||||||||||||||| |||||||||
Db      61 NSYCTTTHTFVKALTMDDKQAAWRFIR 87


RESULT 12
Q9P2Z4
ID   Q9P2Z4      PRELIMINARY;      PRT;    87 AA.
AC   Q9P2Z4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Truncated beta nerve growth factor (Fragment).
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95236507; PubMed=7720122;
RA   Li Y., Huang B., Cai L.;
RT   "Amplification, cloning and sequencing of beta nerve growth factor
RT   gene in the Chinese population.";
RL   Chung-Kuo I Hsueh Ko Hsueh Yuan Hsueh Pao 16:334-338(1994).
DR   EMBL; S76884; AAB34114.2; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   87 AA;  9729 MW;  45E9E27388FDEE27 CRC64;

  Query Match             69.6%;  Score 458;  DB 4;  Length 87;
  Best Local Similarity   94.3%;  Pred. No. 2.4e-44;
  Matches   82;  Conservative    1;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||:||||||||||||||||||||||||||||||||||| ||||||||||
Db       1 SSSHPIFHRGEFAVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFEQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFV 88
           |||||||||| |||||||||| || |
Db      61 PNPVDSGCRGTDSKHWNSYCTTNHTLV 87


RESULT 13
Q91988
ID   Q91988      PRELIMINARY;      PRT;   286 AA.
AC   Q91988;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Neurotrophin-6 precursor.
OS   Xiphophorus maculatus (Southern platyfish), and
OS   Xiphophorus helleri.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083, 8084;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95059452; PubMed=7969471;
RA   Gotz R., Koster R., Winkler C., Raulf F., Lottspeich F., Schartl M.,
RA   Thoenen H.;
RT   "Neurotrophin-6 is a new member of the nerve growth factor family.";
RL   Nature 372:266-269(1994).
DR   EMBL; L36942; AAA61923.1; -.
DR   EMBL; L36325; AAA61922.1; -.
DR   EMBL; L36326; AAA61921.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Signal.
FT   SIGNAL        1    142
FT   CHAIN       143    286       NEUROTROPHIN-6.
SQ   SEQUENCE   286 AA;  31424 MW;  5607DBA66792E12D CRC64;

  Query Match             52.9%;  Score 348;  DB 13;  Length 286;
  Best Local Similarity   49.6%;  Pred. No. 2.9e-31;
  Matches   69;  Conservative   18;  Mismatches   28;  Indels   24;  Gaps    3;

Qy       4 SHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDP- 62
           || : ||||:|||||:: || :|| ||||: | || ||  | :|| | :| |:|| || |
Db     146 SHTM-HRGEYSVCDSINTWV-NKTRATDMSGNEVTVLSHVTVNNKVKKQLFYETTCRSPT 203

Qy      63 --------------------NPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWR 101
                                :||||||||::|||:|| |  :| |||:  :| |||
Db     204 HRSSGIVIGGRSGGRGGKQGSKTGNSGCRGIDSRYWNSHCTNTDIYVSALTVFKEQTAWR 263

Qy     102 FIRIDTACVCVLSRKAVRR 120
           ||||: |||||||| :  |
Db     264 FIRINAACVCVLSRNSWSR 282


RESULT 14
Q9N182
ID   Q9N182      PRELIMINARY;      PRT;   241 AA.
AC   Q9N182;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Neurotrophin-3 (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Hashimoto T., Okuno H., Tokuyama W., Li Y.X., Miyashita Y.;
RT   "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT   their receptor messenger RNAs in monkey rhinal cortex.";
RL   Neuroscience 0:0-0(2000).
DR   EMBL; AF222683; AAF33791.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
```

```
FT   NON_TER       1      1
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  27803 MW;  AB95E457C7B07113 CRC64;

  Query Match             51.4%;  Score 338.5;  DB 6;  Length 241;
  Best Local Similarity   59.0%;  Pred. No. 2.8e-30;
  Matches   59;  Conservative   18;  Mismatches   22;  Indels    1;  Gaps    1;

Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||||:||||| |:|| ||::| ||:| :| |||:   ||  :|||:||:|::  || :|
Db     142 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 201

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDT 107
           ||||| ||||| | |: |:|:||| :  |   ||:|||||
Db     202 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDT 241


RESULT 15
Q9CYL3
ID   Q9CYL3      PRELIMINARY;      PRT;   153 AA.
AC   Q9CYL3;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=EMBRYO;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK017559; BAB30805.1; -.
DR   HSSP; P23560; 1B8M.
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   153 AA;  17519 MW;  CA8EB8944CEE5B37 CRC64;

  Query Match             49.3%;  Score 324.5;  DB 11;  Length 153;
  Best Local Similarity   54.9%;  Pred. No. 6.3e-29;
  Matches   62;  Conservative   14;  Mismatches   34;  Indels    3;  Gaps    2;

Qy      10 RGEFSVCDSVSVWV--GDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDS 67
           ||| |||||:| ||   || || |: |  | || :| ::    :|||:||||
Db      41 RGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKE 100

Qy      68 GCRGIDSKHWNSYCTTTHTFVKALTMDG-KQAAWRFIRIDTACVCVLSRKAVR 119
           |||||| :|||| | || ::|:|||||  |:  ||||||||:||| |: |  |
Db     101 GCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 153


Search completed: December  2, 2002, 15:12:01
Job time : 19.7245 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 8.36928 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	658	100.0	121	4	US-09-675-503-2	Sequence 2, Appli
2	651	98.9	120	3	US-08-970-865-2	Sequence 2, Appli
3	651	98.9	120	4	US-09-363-573-2	Sequence 2, Appli
4	648	98.5	120	1	US-08-440-049-3	Sequence 3, Appli
5	648	98.5	120	2	US-08-441-513A-3	Sequence 3, Appli
6	648	98.5	120	3	US-08-581-662-31	Sequence 31, Appl
7	648	98.5	120	4	US-08-845-541B-1	Sequence 1, Appli
8	648	98.5	120	4	US-09-066-065A-1	Sequence 1, Appli
9	648	98.5	120	4	US-09-447-356-1	Sequence 1, Appli
10	648	98.5	120	4	US-09-664-295-31	Sequence 31, Appl
11	648	98.5	120	5	PCT-US95-06918-3	Sequence 3, Appli
12	648	98.5	241	1	US-08-266-080B-4	Sequence 4, Appli
13	648	98.5	241	1	US-08-451-947-5	Sequence 5, Appli
14	648	98.5	241	2	US-08-424-826A-5	Sequence 5, Appli
15	648	98.5	241	2	US-08-595-043A-75	Sequence 75, Appl
16	648	98.5	241	3	US-08-970-865-1	Sequence 1, Appli
17	648	98.5	241	3	US-08-928-694-5	Sequence 5, Appli
18	648	98.5	241	4	US-09-363-573-1	Sequence 1, Appli
19	648	98.5	241	4	US-09-447-356-3	Sequence 3, Appli
20	648	98.5	241	5	PCT-US91-06950-5	Sequence 5, Appli
21	648	98.5	241	5	PCT-US95-05423-4	Sequence 4, Appli
22	648	98.5	242	4	US-09-675-503-1	Sequence 1, Appli
23	639	97.1	119	3	US-08-753-642-2	Sequence 2, Appli
24	639	97.1	153	4	US-09-675-922-2	Sequence 2, Appli
25	639	97.1	157	4	US-09-675-922-4	Sequence 4, Appli
26	639	97.1	163	4	US-09-675-922-6	Sequence 6, Appli
27	639	97.1	167	4	US-09-675-922-8	Sequence 8, Appli
28	634	96.4	120	4	US-08-845-541B-3	Sequence 3, Appli
29	634	96.4	120	4	US-09-066-065A-3	Sequence 3, Appli
30	631	95.9	120	4	US-08-845-541B-4	Sequence 4, Appli
31	631	95.9	120	4	US-09-066-065A-4	Sequence 4, Appli
32	626	95.1	120	4	US-08-845-541B-12	Sequence 12, Appl
33	626	95.1	120	4	US-09-066-065A-12	Sequence 12, Appl
34	625	95.0	120	4	US-08-845-541B-17	Sequence 17, Appl
35	625	95.0	120	4	US-08-845-541B-20	Sequence 20, Appl
36	625	95.0	120	4	US-09-066-065A-17	Sequence 17, Appl
37	625	95.0	120	4	US-09-066-065A-20	Sequence 20, Appl
38	623	94.7	120	4	US-08-845-541B-18	Sequence 18, Appl
39	623	94.7	120	4	US-08-845-541B-21	Sequence 21, Appl
40	623	94.7	120	4	US-09-066-065A-18	Sequence 18, Appl
41	623	94.7	120	4	US-09-066-065A-21	Sequence 21, Appl
42	620	94.2	120	4	US-08-845-541B-13	Sequence 13, Appl
43	620	94.2	120	4	US-08-845-541B-19	Sequence 19, Appl
44	620	94.2	120	4	US-09-066-065A-13	Sequence 13, Appl
45	620	94.2	120	4	US-09-066-065A-19	Sequence 19, Appl

ALIGNMENTS

RESULT 1
US-09-675-503-2
; Sequence 2, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: ISOLATION OF NEUROTROPHINS FROM A
; TITLE OF INVENTION: MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
; TITLE OF INVENTION: USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
; FILE REFERENCE: GENENT.037C2
; CURRENT APPLICATION NUMBER: US/09/675,503
; CURRENT FILING DATE: 2000-09-29
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 121
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-675-503-2

Query Match 100.0%; Score 658; DB 4; Length 121;
Best Local Similarity 100.0%; Pred. No. 4.1e-75;
Matches 121; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60

Qy      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120

Qy     121 A 121
           |
Db     121 A 121
```

RESULT 2
US-08-970-865-2
; Sequence 2, Application US/08970865

```
; Patent No. 6005081
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-2

  Query Match             98.9%;  Score 651;  DB 3;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-74;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 3
US-09-363-573-2
; Sequence 2, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-2

  Query Match             98.9%;  Score 651;  DB 4;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-74;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 4
US-08-440-049-3
; Sequence 3, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
```

```
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-3

  Query Match             98.5%;  Score 648;  DB 1;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 5
US-08-441-513A-3
; Sequence 3, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-3

  Query Match             98.5%;  Score 648;  DB 2;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 6
US-08-581-662-31
; Sequence 31, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 31
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-31

  Query Match             98.5%;  Score 648;  DB 3;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 7
US-08-845-541B-1
; Sequence 1, Application US/08845541B
; Patent No. 6333310
; GENERAL INFORMATION:
;  APPLICANT: Presta, Leonard
;  APPLICANT:  Urfer, Roman
;  APPLICANT:  Winslow, John
;  TITLE OF INVENTION: NGF VARIANTS
;  FILE REFERENCE: GENENT.039A
;  CURRENT APPLICATION NUMBER: US/08/845,541B
;  CURRENT FILING DATE:  1999-04-25
;  NUMBER OF SEQ ID NOS: 38
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: homo sapien
US-08-845-541B-1

  Query Match             98.5%;  Score 648;  DB 4;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 8
US-09-066-065A-1
; Sequence 1, Application US/09066065A
```

```
; Patent No. 6365373
;  GENERAL INFORMATION:
;    APPLICANT:  Leonard G. Presta, Roman Urfer, John W. Winslow
;    TITLE OF INVENTION:  NGF Variants
;    NUMBER OF SEQUENCES:  21
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/066,065A
;      FILING DATE:  24-Apr-1998
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/044918
;      FILING DATE:  25-APR-1999
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1098R1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-066-065A-1

  Query Match             98.5%;  Score 648;  DB 4;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 9
US-09-447-356-1
; Sequence 1, Application US/09447356
; Patent No. 6395513
; GENERAL INFORMATION:
;  APPLICANT:  FOSTER, KEITH ALAN
;  APPLICANT:  DUGGAN, MICHAEL JOHN
;  APPLICANT:  SHONE, CLIFFORD CHARLES
;  TITLE OF INVENTION:  CLOSTRIDIAL TOXIN DERIVATIVES ABLE TO MODIFY PERIPHERAL
;  TITLE OF INVENTION:  SENSORY AFFERENT FUNCTIONS
;  FILE REFERENCE:  023223/0104
;  CURRENT APPLICATION NUMBER: US/09/447,356
;  CURRENT FILING DATE:  1999-11-22
;  PRIOR APPLICATION NUMBER:  08/945,037
;  PRIOR FILING DATE:  1998-01-12
;  PRIOR APPLICATION NUMBER:  GB 9508204.6
;  PRIOR FILING DATE:  1995-04-21
;  NUMBER OF SEQ ID NOS:  11
;  SOFTWARE:  PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Murine sp.
US-09-447-356-1

  Query Match             98.5%;  Score 648;  DB 4;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 10
US-09-664-295-31
; Sequence 31, Application US/09664295
; Patent No. 6429196
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: GENENT.051C1
;  CURRENT APPLICATION NUMBER: US/09/664,295
;  CURRENT FILING DATE:  2000-09-18
;  PRIOR APPLICATION NUMBER: US 08/581,662
;  PRIOR FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 37
; SEQ ID NO 31
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-664-295-31

  Query Match             98.5%;  Score 648;  DB 4;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 11
PCT-US95-06918-3
; Sequence 3, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
```

```
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-3

  Query Match             98.5%;  Score 648;  DB 5;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.4e-74;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 120


RESULT 12
US-08-266-080B-4
; Sequence 4, Application US/08266080B
; Patent No. 5606031
;  GENERAL INFORMATION:
;    APPLICANT:  Jack Lile
;    APPLICANT:  Tadahiko Kohno
;    APPLICANT:  Duane Bonam
;    APPLICANT:  Mary S. Rosendahl
;    TITLE OF INVENTION:  Production of Biologically Active
;    TITLE OF INVENTION:  Recombinant Neurotrophic Protein
;    NUMBER OF SEQUENCES:  13
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Swanson & Bratschun, L.L.C.
;      STREET:  8400 E. Prentice Avenue, Suite 200
;      CITY:  Englewood
;      STATE:  Colorado
;      COUNTRY:  USA
;      ZIP:  80111
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette, 5.25 inch, 360 Kb storage
;      COMPUTER:  IBM compatible
;      OPERATING SYSTEM:  MS-DOS
;      SOFTWARE:  WordPerfect 5.1
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/266,080B
;      FILING DATE:  27-JUNE-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240,122
;      FILING DATE:  09-MAY-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/087,912
;      FILING DATE:  06-JULY-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/680,681
;      FILING DATE:  04-APRIL-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/594,126
;      FILING DATE:  09-OCT-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/547,750
;      FILING DATE:  02-JULY-1990
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/505,441
;      FILING DATE:  06-APRIL-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Barry J. Swanson
;      REGISTRATION NUMBER:  33,215
;      REFERENCE/DOCKET NUMBER:  SYNE200C5
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (303) 793-3333
;      TELEFAX:  (303) 793-3433
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    FEATURE:
;      NAME/KEY:  inferred amino acid sequence of human NGF
US-08-266-080B-4

  Query Match             98.5%;  Score 648;  DB 1;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-73;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 13
US-08-451-947-5
; Sequence 5, Application US/08451947
; Patent No. 5702906
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/451,947
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
```

```
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-451-947-5

  Query Match             98.5%;  Score 648;  DB 1;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-73;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 14
US-08-424-826A-5
; Sequence 5, Application US/08424826A
; Patent No. 5830858
;  GENERAL INFORMATION:
;    APPLICANT:  Rosenthal, Arnon
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  98
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/424,826A
;      FILING DATE:  19-Apr-1995
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240387
;      FILING DATE:  10-May-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  25-SEP-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P1C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-424-826A-5

  Query Match             98.5%;  Score 648;  DB 2;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-73;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 15
US-08-595-043A-75
; Sequence 75, Application US/08595043A
; Patent No. 5935824
;  GENERAL INFORMATION:
;    APPLICANT:  SGARLATO, GREGORY D.
;    TITLE OF INVENTION:  PROTEIN EXPRESSION SYSTEM
;    NUMBER OF SEQUENCES:  90
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  MEDLEN & CARROLL
;      STREET:  220 MONTGOMERY STREET, SUITE 2200
;      CITY:  SAN FRANCISCO
;      STATE:  CALIFORNIA
;      COUNTRY:  UNITED STATES OF AMERICA
;      ZIP:  94104
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/595,043A
;      FILING DATE:  31-JAN-1996
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  CARROLL, PETER G.
;      REGISTRATION NUMBER:  32,837
;      REFERENCE/DOCKET NUMBER:  SGAR-00371
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 705-8410
;      TELEFAX:  (415) 397-8338
;  INFORMATION FOR SEQ ID NO:  75:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-595-043A-75

  Query Match             98.5%;  Score 648;  DB 2;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-73;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


Search completed: December  2, 2002, 15:09:42
Job time : 8.36928 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 4.25557 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-2
Perfect score: 658
Sequence: 1 PSSSHPIFHRGEFSVCDSVS.....FIRIDTACVCVLSRKAVRRA 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	658	100.0	121	12	US-10-072-681-2	Sequence 2, Appli
2	648	98.5	241	8	US-08-450-842-5	Sequence 5, Appli
3	648	98.5	241	10	US-09-822-263-16	Sequence 16, Appl
4	648	98.5	242	12	US-10-072-681-1	Sequence 1, Appli
5	639	97.1	153	10	US-09-798-338-2	Sequence 2, Appli
6	639	97.1	157	10	US-09-798-338-4	Sequence 4, Appli
7	639	97.1	163	10	US-09-798-338-6	Sequence 6, Appli
8	639	97.1	167	10	US-09-798-338-8	Sequence 8, Appli
9	625	95.0	121	9	US-09-813-398-9	Sequence 9, Appli
10	594	90.3	121	12	US-10-072-681-3	Sequence 3, Appli
11	455	69.1	142	8	US-08-450-842-52	Sequence 52, Appl
12	387	58.8	72	10	US-09-848-664-21	Sequence 21, Appl
13	385.5	58.6	119	10	US-09-745-032-6	Sequence 6, Appli
14	385.5	58.6	119	10	US-09-742-600-6	Sequence 6, Appli
15	385.5	58.6	119	10	US-09-872-090-6	Sequence 6, Appli
16	385.5	58.6	120	10	US-09-745-032-3	Sequence 3, Appli
17	385.5	58.6	120	10	US-09-742-600-3	Sequence 3, Appli
18	385.5	58.6	120	10	US-09-872-090-3	Sequence 3, Appli
19	384.5	58.4	117	10	US-09-745-032-7	Sequence 7, Appli
20	384.5	58.4	117	10	US-09-742-600-7	Sequence 7, Appli
21	384.5	58.4	117	10	US-09-872-090-7	Sequence 7, Appli
22	384.5	58.4	118	10	US-09-745-032-5	Sequence 5, Appli
23	384.5	58.4	118	10	US-09-742-600-5	Sequence 5, Appli
24	384.5	58.4	118	10	US-09-872-090-5	Sequence 5, Appli
25	380.5	57.8	120	10	US-09-745-032-1	Sequence 1, Appli
26	380.5	57.8	120	10	US-09-742-600-1	Sequence 1, Appli
27	380.5	57.8	120	10	US-09-872-090-1	Sequence 1, Appli
28	380.5	57.8	257	8	US-08-450-842-4	Sequence 4, Appli
29	374	56.8	120	9	US-09-813-398-11	Sequence 11, Appl
30	371	56.4	120	12	US-10-072-681-5	Sequence 5, Appli
31	334.5	50.8	120	10	US-09-745-032-10	Sequence 10, Appl
32	334.5	50.8	120	10	US-09-742-600-10	Sequence 10, Appl
33	330.5	50.2	120	10	US-09-745-032-9	Sequence 9, Appli
34	330.5	50.2	120	10	US-09-742-600-9	Sequence 9, Appli
35	326.5	49.6	130	8	US-08-450-842-47	Sequence 47, Appl
36	324.5	49.3	120	10	US-09-745-032-8	Sequence 8, Appli
37	324.5	49.3	120	10	US-09-742-600-8	Sequence 8, Appli
38	324.5	49.3	247	8	US-08-450-842-3	Sequence 3, Appli
39	313	47.6	132	8	US-08-450-842-51	Sequence 51, Appl
40	309.5	47.0	130	8	US-08-450-842-23	Sequence 23, Appl
41	308.5	46.9	119	12	US-10-072-681-4	Sequence 4, Appli
42	307.5	46.7	130	8	US-08-450-842-22	Sequence 22, Appl
43	307.5	46.7	131	9	US-09-813-398-12	Sequence 12, Appl
44	307.5	46.7	168	8	US-08-450-842-6	Sequence 6, Appli
45	307.5	46.7	210	8	US-08-450-842-2	Sequence 2, Appli

ALIGNMENTS

RESULT 1
US-10-072-681-2
; Sequence 2, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: PURIFICATION OF NGF
; FILE REFERENCE: GENENT.037C3
; CURRENT APPLICATION NUMBER: US/10/072,681
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; PRIOR APPLICATION NUMBER: 09/675,503
; PRIOR FILING DATE: 2000-09-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
; LENGTH: 121
; TYPE: PRT
; ORGANISM: Homo sapien
US-10-072-681-2

Query Match 100.0%; Score 658; DB 12; Length 121;
Best Local Similarity 100.0%; Pred. No. 5.2e-69;
Matches 121; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60

Qy      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
```

```
Qy     121 A 121
           |
Db     121 A 121


RESULT 2
US-08-450-842-5
; Sequence 5, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-5

  Query Match             98.5%;  Score 648;  DB 8;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.7e-67;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 3
US-09-822-263-16
; Sequence 16, Application US/09822263
; Patent No. US20020036598A1
; GENERAL INFORMATION:
;  APPLICANT: Prayaga, Sudhirdas
;  APPLICANT:  Vernet, Corine
;  APPLICANT:  Shimkets, Richard A
;  APPLICANT:  Burgess, Catherine
;  APPLICANT:  Spytek, Kimberly
;  APPLICANT:  Tchernev, Velizar T
;  TITLE OF INVENTION: No. US20020036598A1el Polynucleotides and Polypeptides Encoded
;  FILE REFERENCE: 15966-572 CIP1
;  CURRENT APPLICATION NUMBER: US/09/822,263
;  CURRENT FILING DATE:  2001-06-15
;  PRIOR APPLICATION NUMBER: 09/672,665
;  PRIOR FILING DATE: 2000-09-28
;  PRIOR APPLICATION NUMBER: 60/156,745
;  PRIOR FILING DATE: 1999-09-30
;  PRIOR APPLICATION NUMBER: 60/158,942
;  PRIOR FILING DATE: 1999-10-06
;  PRIOR APPLICATION NUMBER: 60/159,248
;  PRIOR FILING DATE: 1999-10-13
;  PRIOR APPLICATION NUMBER: 60/169,344
;  PRIOR FILING DATE: 1999-12-06
;  PRIOR APPLICATION NUMBER: 60/215,048
;  PRIOR FILING DATE: 2000-06-29
;  NUMBER OF SEQ ID NOS: 36
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 16
;   LENGTH: 241
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-822-263-16

  Query Match             98.5%;  Score 648;  DB 10;  Length 241;
  Best Local Similarity   99.2%;  Pred. No. 1.7e-67;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 241


RESULT 4
US-10-072-681-1
; Sequence 1, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 242
;   TYPE: PRT
;   ORGANISM: Homo sapien
```

```
US-10-072-681-1

  Query Match             98.5%;  Score 648;  DB 12;  Length 242;
  Best Local Similarity   99.2%;  Pred. No. 1.7e-67;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db     123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRRA 242


RESULT 5
US-09-798-338-2
; Sequence 2, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 2
;   LENGTH: 153
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-2

  Query Match             97.1%;  Score 639;  DB 10;  Length 153;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-66;
  Matches  117;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      35 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 94

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      95 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 152


RESULT 6
US-09-798-338-4
; Sequence 4, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 157
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artifical
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-4

  Query Match             97.1%;  Score 639;  DB 10;  Length 157;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-66;
  Matches  117;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      39 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 98

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      99 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 156


RESULT 7
US-09-798-338-6
; Sequence 6, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 6
;   LENGTH: 163
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-6

  Query Match             97.1%;  Score 639;  DB 10;  Length 163;
  Best Local Similarity   99.2%;  Pred. No. 1.2e-66;
  Matches  117;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db      45 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 104

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     105 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 162


RESULT 8
US-09-798-338-8
; Sequence 8, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
```

```
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 8
;    LENGTH: 167
;    TYPE: PRT
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: Description of Artificial Sequence:Artificial
;    OTHER INFORMATION: Protein Sequence
US-09-798-338-8

  Query Match             97.1%;  Score 639;  DB 10;  Length 167;
  Best Local Similarity   99.2%;  Pred. No. 1.2e-66;
  Matches  117;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||:|||||||||
Db      49 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 108

Qy      62 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     109 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 166


RESULT 9
US-09-813-398-9
; Sequence 9, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
;  APPLICANT: Bruce D. Weintraub
;  APPLICANT:  Mariusz W. Szkudlinski
;  APPLICANT:  University of Maryland
;  TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
;  FILE REFERENCE: UOFMD.003C1
;  CURRENT APPLICATION NUMBER: US/09/813,398
;  CURRENT FILING DATE:  2001-03-20
;  PRIOR APPLICATION NUMBER: PCT/US99/05908
;  PRIOR FILING DATE: 1999-03-19
;  PRIOR APPLICATION NUMBER: PCT/US98/19772
;  PRIOR FILING DATE: 1998-09-22
;  NUMBER OF SEQ ID NOS: 41
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 9
;    LENGTH: 121
;    TYPE: PRT
;    ORGANISM: HOMO SAPIEN
US-09-813-398-9

  Query Match             95.0%;  Score 625;  DB 9;  Length 121;
  Best Local Similarity   95.0%;  Pred. No. 3.3e-65;
  Matches  115;  Conservative    2;  Mismatches    4;  Indels    0;  Gaps    0;

Qy       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60
           |||||||||||||||||||||||||||||||||||||||||||  ||||:|||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNNINSVFKQYFFETKCR 60

Qy      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           ||||||||||||||||||||||||||:  ||||||||||||||||||||||||||||||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKAMLTDGKQAAWRFIRIDTACVCVLSRKAVRR 120

Qy     121 A 121
           |
Db     121 A 121


RESULT 10
US-10-072-681-3
; Sequence 3, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
;    LENGTH: 121
;    TYPE: PRT
;    ORGANISM: mouse
US-10-072-681-3

  Query Match             90.3%;  Score 594;  DB 12;  Length 121;
  Best Local Similarity   90.8%;  Pred. No. 1.3e-61;
  Matches  109;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60
           |||:||:|| |||||||||||||||||||||||| || ||||||||||||||||||
Db       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60

Qy      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120
           |||:|||||||||||||||||||||||||| | ||||||||||||||||||| ||
Db      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120


RESULT 11
US-08-450-842-52
; Sequence 52, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
```

```
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  52:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  142 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-52

  Query Match            69.1%;  Score 455;  DB 8;  Length 142;
  Best Local Similarity   64.8%;  Pred. No. 1.7e-45;
  Matches   92;  Conservative   11;  Mismatches   17;  Indels   22;  Gaps    4;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSV---------- 49
           ||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVVLGEVPAAGGSP 60

Qy      50 FRQYFFETKCRDPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWR 101
           |||||||:|:  |  :        ||||:| :|| | |    ::|:||| | : :  ||
Db      61 LRQYFFETRCKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWR 120

Qy     102 FIRIDTA--CVCVLSRKAVRRA 121
           :||||||  ||||||||||||
Db     121 WIRIDTACVCVCVLSRKAVRRA 142


RESULT 12
US-09-848-664-21
; Sequence 21, Application US/09848664
; Patent No. US20020146414A1
; GENERAL INFORMATION:
;  APPLICANT: Sakiyama-Elbert, Shelly E.
;  APPLICANT:  Hubbell, Jeffrey A.
;  TITLE OF INVENTION: Controlled Release of No. US20020146414A1-Heparin Binding Growth
;  TITLE OF INVENTION:  Factors from Heparin Containing Matrices
;  FILE REFERENCE: ETH 108
;  CURRENT APPLICATION NUMBER: US/09/848,664
;  CURRENT FILING DATE:  2001-05-03
;  PRIOR APPLICATION NUMBER: 09/298,084
;  PRIOR FILING DATE: 1999-04-22
;  NUMBER OF SEQ ID NOS: 31
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 21
;   LENGTH: 72
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-848-664-21

  Query Match            58.8%;  Score 387;  DB 10;  Length 72;
  Best Local Similarity   98.6%;  Pred. No. 5.1e-38;
  Matches   71;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 61
           |||||||||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy      62 PNPVDSGCRGID 73
           ||||||||||||
Db      61 PNPVDSGCRGID 72


RESULT 13
US-09-745-032-6
; Sequence 6, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-6

  Query Match            58.6%;  Score 385.5;  DB 10;  Length 119;
  Best Local Similarity   60.7%;  Pred. No. 1.4e-37;
  Matches   68;  Conservative   19;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  :|||:|||:|::  |||:|
Db       7 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAAPVDNG 66

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||| ||||  |
Db      67 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 118


RESULT 14
US-09-742-600-6
; Sequence 6, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-6

  Query Match            58.6%;  Score 385.5;  DB 10;  Length 119;
  Best Local Similarity   60.7%;  Pred. No. 1.4e-37;
  Matches   68;  Conservative   19;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  :|||:|||:|::  |||:|
Db       7 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAAPVDNG 66

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||| ||||  |
Db      67 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 118


RESULT 15
US-09-872-090-6
; Sequence 6, Application US/09872090
```

; Patent No. US20020052488A1
; GENERAL INFORMATION:
; APPLICANT: Boone, Thomas C.
; APPLICANT: Cheung, Ellen Ngoi Yin
; APPLICANT: Hershenson, Susan I.
; APPLICANT: Young, John D.
; TITLE OF INVENTION: Analogs of NT-3 (As Amended)
; FILE REFERENCE: A-411B
; CURRENT APPLICATION NUMBER: US/09/872,090
; CURRENT FILING DATE: 2001-06-01
; PRIOR APPLICATION NUMBER: 09/255,953
; PRIOR FILING DATE: 1999-02-23
; PRIOR APPLICATION NUMBER: 08/684,353
; PRIOR FILING DATE: 1996-07-19
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
; LENGTH: 119
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Analog of
; OTHER INFORMATION: human NT-3.
US-09-872-090-6

Query Match 58.6%; Score 385.5; DB 10; Length 119;
Best Local Similarity 60.7%; Pred. No. 1.4e-37;
Matches 68; Conservative 19; Mismatches 24; Indels 1; Gaps 1;

```
Qy       9 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 68
           ||||:||||| |:|| ||::| ||:| :| |||| :  || :|||:||:|::  |||:|
Db       7 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAAPVDNG 66

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||| |||| |
Db      67 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 118
```

Search completed: December 2, 2002, 15:14:34
Job time : 5.25557 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 24.1149 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	646	98.9	120	19	AAW48887	Mouse nerve growth
2	646	98.9	307	5	AAP40036	Sequence encoded b
3	646	98.9	307	5	AAP40039	Sequence encoded b
4	646	98.9	307	14	AAR45240	Cloned mouse pre-p
5	643	98.5	120	13	AAR21868	Chimeric neurotrop
6	643	98.5	120	13	AAR21873	Chimeric neurotrop
7	640	98.0	240	23	AAM50845	Mouse nerve growth
8	639	97.9	132	13	AAR21862	Chimeric neurotrop
9	635	97.2	118	13	AAR29493	NGF, mouse. Mus m
10	633	96.9	120	13	AAR21864	Chimeric neurotrop
11	631	96.6	120	13	AAR21870	Chimeric neurotrop
12	624	95.6	120	13	AAR21866	Chimeric neurotrop
13	622	95.3	120	13	AAR21871	Chimeric neurotrop
14	618	94.6	120	15	AAR54084	Nerve growth facto
15	611.5	93.6	121	13	AAR21872	Chimeric neurotrop
16	610	93.4	122	13	AAR21865	Chimeric neurotrop
17	608	93.1	118	13	AAR21874	Chimeric neurotrop
18	607	93.0	120	13	AAR21867	Chimeric neurotrop
19	603	92.3	120	13	AAR21869	Chimeric neurotrop
20	595	91.1	120	13	AAR21863	Chimeric neurotrop
21	591	90.5	119	10	AAP90133	Human nerve growth
22	585	89.6	307	14	AAR37799	Human NGF. Homo s
23	584	89.4	120	20	AAW81117	Nerve growth facto
24	584	89.4	120	21	AAB29141	N-terminal of neut
25	584	89.4	120	22	AAG64994	Nerve growth facto
26	584	89.4	120	22	AAB35944	NGF-beta amino aci
27	584	89.4	124	13	AAR21851	Chimeric neurotrop
28	584	89.4	241	12	AAR13063	Human NGF SmaI-Apa
29	584	89.4	241	12	AAR11474	Human nerve growth
30	584	89.4	241	12	AAR13858	Human nerve growth
31	584	89.4	241	12	AAR13886	NGF with pro-regio
32	584	89.4	241	16	AAR77419	Human nerve growth
33	584	89.4	241	16	AAR66688	Human nerve growth
34	584	89.4	241	18	AAW26237	Human preproNGF.
35	584	89.4	241	19	AAW48886	Human prepro-nerve
36	584	89.4	241	20	AAY07303	Human nerve growth
37	584	89.4	241	22	AAB67865	Amino acid sequenc
38	584	89.4	241	22	AAB66929	Human NGF. Homo s
39	584	89.4	241	23	AAE18904	Human beta nerve g
40	584	89.4	241	23	ABB04994	Human beta nerve g
41	584	89.4	245	5	AAP40038	Sequence encoded b
42	584	89.4	307	14	AAR45241	Human pre-pro nerv
43	584	89.4	307	19	AAW69725	Human beta-nerve g
44	579	88.7	118	10	AAP91034	Human nerve growth
45	579	88.7	119	5	AAP40040	Sequence encoded b

ALIGNMENTS

RESULT 1
AAW48887
ID AAW48887 standard; Protein; 120 AA.
XX
AC AAW48887;
XX
DT 12-OCT-1998 (first entry)
XX
DE Mouse nerve growth factor.
XX
KW Neurotrophin; nerve growth factor; NGF; mouse; purification;
KW hydrophobic interaction chromatography.
XX
OS Mus sp.
XX
FH Key Location/Qualifiers
FT Region 58..68
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
FT Region 108..110
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
XX
PN WO9821234-A2.
XX
PD 22-MAY-1998.
XX
PF 14-NOV-1997; 97WO-US21068.
XX
PR 29-MAY-1997; 97US-0047855.
PR 15-NOV-1996; 96US-0030838.
XX
PA (GETH) GENENTECH INC.

```
XX
PI   Beck JT,  Burton LE,  Schmelzer CH;
XX
DR   WPI; 1998-322333/28.
XX
PT   Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT   variant(s) - using hydrophobic interaction chromatography,
PT   optionally in combination with high performance cation exchange
PT   chromatography
XX
PS   Disclosure; Page 36; 59pp; English.
XX
CC   This polypeptide comprises mouse nerve growth factor (NGF) mature
CC   polypeptide.  Methods are provided for large-scale purification of
CC   neurotrophins, including mature NGF, suitable for clinical use.  A
CC   claimed method comprises: (1) separating the neurotrophin from the
CC   other proteins using a hydrophobic interaction chromatography resin
CC   (HICR); and optionally (2) separating the neurotrophin from a
CC   chemical variant by high performance cation exchange chromatography
CC   (HPCEC).  The processes can also be used for purification of e.g.
CC   human NGF (see AAW48886), brain-derived neurotrophic factor (see
CC   AAW48888), neurotrophin-4/5 (see AAW48890) and neurotrophin-3 (see
CC   AAW48889).  The processes allow separation of neurotrophins from
CC   various undesirable misprocessed, misfolded, size, glycosylated or
CC   charge forms.  They allow selective separation from variants and
CC   other molecules, and from other polypeptides with high pI.  The
CC   processes are applicable to starting materials from various
CC   sources, including fermentation broths or lysed bacterial or
CC   mammalian cells.
XX
SQ   Sequence   120 AA;

  Query Match             98.9%;  Score 646;  DB 19;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1e-66;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 2
AAP40036
ID   AAP40036 standard; Protein; 307 AA.
XX
AC   AAP40036;
XX
DT   25-JAN-1992  (first entry)
XX
DE   Sequence encoded by the human beta-nerve growth factor (NGF) gene
DE   and flanking regions on phage lambda h-beta-N8.
XX
KW   Nerve damage; therapy.
XX
OS   Homo sapiens.
XX
PN   EP121338-A.
XX
PD   10-OCT-1984.
XX
PF   02-MAR-1984;   84EP-0301377.
XX
PR   03-MAR-1983;   83US-0471962.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Gray AM,  Ullrich A;
XX
DR   WPI; 1984-251909/41.
DR   N-PSDB; AAN40031.
XX
PT   Human beta-nerve growth factor free from other proteins - obtd.
PT   by recombinant DNA techniques for treating nerve damage
XX
PS   Example; Fig 2; 42pp; English.
XX
CC   The inventors claim human beta-nerve growth factor (NGF) free from
CC   other proteins of human origin. Also claimed are the DNA sequence
CC   encoding human beta-NGF operably linked with a DNA sequence capable
CC   of effecting its expression in a recombinant host cell; a replicable
CC   expression vector contg. the DNA; and host cells transformed with
CC   the vector. The plasmid claimed is plasmid ph-beta-NGF trp 1. Using
CC   the plasmid, larger amounts of pure beta-NGF are obtainable than by
CC   extn. of natural materials, see e.g. EP--2139.
XX
SQ   Sequence   307 AA;

  Query Match             98.9%;  Score 646;  DB 5;  Length 307;
  Best Local Similarity   100.0%;  Pred. No. 3.5e-66;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 307


RESULT 3
AAP40039
ID   AAP40039 standard; Protein; 307 AA.
XX
AC   AAP40039;
XX
DT   25-JAN-1992  (first entry)
XX
DE   Sequence encoded by human prepro-beta-nerve growth factor
DE   (NGF) gene.
XX
KW   Nerve damage; therapy.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..187
FT                   /label= signal
FT   Protein         188..307
XX
PN   EP121338-A.
XX
PD   10-OCT-1984.
XX
PF   02-MAR-1984;   84EP-0301377.
XX
PR   03-MAR-1983;   83US-0471962.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Gray AM,  Ullrich A;
XX
DR   WPI; 1984-251909/41.
DR   N-PSDB; AAN40034.
XX
PT   Human beta-nerve growth factor free from other proteins - obtd.
PT   by recombinant DNA techniques for treating nerve damage
XX
PS   Example; Fig 6; 42pp; English.
XX
CC   The inventors claim human beta-nerve growth factor (NGF) free from
CC   other proteins of human origin. Also claimed are the DNA sequence
```

```
CC   encoding human beta-NGF operably linked with a DNA sequence capable
CC   of effecting its expression in a recombinant host cell; a replicable
CC   expression vector contg. the DNA; and host cells transformed with
CC   the vector. The plasmid claimed is plasmid ph-beta-NGF trp 1. Using
CC   the plasmid, larger amounts of pure beta-NGF are obtainable than by
CC   extn. of natural materials, see e.g. EP--2139.
XX
SQ   Sequence   307 AA;

  Query Match             98.9%;  Score 646;  DB 5;  Length 307;
  Best Local Similarity   100.0%;  Pred. No. 3.5e-66;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 307


RESULT 4
AAR45240
ID   AAR45240 standard; Protein; 307 AA.
XX
AC   AAR45240;
XX
DT   20-JUN-1994  (first entry)
XX
DE   Cloned mouse pre-pro nerve growth factor.
XX
KW   Mature human; beta-nerve growth factor; mouse; pre-pro portion;
KW   expression; NGF; hNGF; treatment; Alzheimer's Disease; murine.
XX
OS   Mus musculus.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..187
FT                   /note= "signal peptide"
FT   Peptide         188..307
FT                   /note= "mature peptide"
XX
PN   US5272063-A.
XX
PD   21-DEC-1993.
XX
PF   20-JUN-1989;   89US-0383118.
XX
PR   22-NOV-1988;   88US-0274878.
PR   20-JUL-1989;   89US-0383118.
XX
PA   (SYNT ) SYNTEX USA INC.
XX
PI   Baecker PA,  Barnett JW,  Bursztyn-Pettegrew H,  Chan HW,  Nguyen BT;
PI   Ward C;
XX
DR   WPI; 1993-413401/51.
DR   N-PSDB; AAQ54282.
XX
PT   Prodn. of active mature human beta-nerve growth factor in insect
PT   cells - using baculovirus expression system, and potential use of
PT   recombinant hNGF in treatment of Alzheimer's disease
XX
PS   Disclosure; Fig 1; 23pp; English.
XX
CC   The sequence is that of mouse pre-pro nerve growth factor
CC   which was used in a method of producing biologically active
CC   mature human beta-nerve growth factor in insect cells.
XX
SQ   Sequence   307 AA;

  Query Match             98.9%;  Score 646;  DB 14;  Length 307;
  Best Local Similarity   100.0%;  Pred. No. 3.5e-66;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 307


RESULT 5
AAR21868
ID   AAR21868 standard; Protein; 120 AA.
XX
AC   AAR21868;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S6.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..50
FT                   /note= "mouse NGF residues 1-50"
FT   Peptide         51..58
FT                   /note= "human BDNF residues 51-58"
FT   Peptide         59..120
FT                   /note= "mouse NGF residues 59-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 29; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S6 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-50,
CC   human brain derived growth factor (hBNDF) residues 51-58 and mouse NGF
CC   residues 59-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S6, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
```

```
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S6 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             98.5%;  Score 643;  DB 13;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 2.3e-66;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFYETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 6
AAR21873
ID   AAR21873 standard; Protein; 120 AA.
XX
AC   AAR21873;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S11.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..101
FT                   /note= "mouse NGF residues 1-101"
FT   Peptide         102..110
FT                   /note= "human BDNF residues 103-111"
FT   Peptide         111..120
FT                   /note= "mouse NGF residues 111-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 34; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S11 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-101,
CC   human brain derived growth factor (hBNDF) residues 103-111 and mouse NGF
CC   residues 111-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S11, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S11 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             98.5%;  Score 643;  DB 13;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 2.3e-66;
  Matches  119;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||:||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTSCVCVLSRKATRRG 120


RESULT 7
AAM50845
ID   AAM50845 standard; Protein; 240 AA.
XX
AC   AAM50845;
XX
DT   01-MAY-2002  (first entry)
XX
DE   Mouse nerve growth factor.
XX
KW   Beta-nerve growth factor; NGF; mouse; neurotrophic factor; NTF;
KW   Huntington's disease; Parkinson's disease; Alzheimer's disease;
KW   amyotrophic lateral sclerosis; neurodegenerative disease; cancer;
KW   neuroprotective; nootropic; anticonvulsant; antiparkinsonian;
KW   cytostatic; therapy.
XX
OS   Mus musculus.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= Signal_peptide
FT   Peptide         19..121
FT                   /label= Propeptide
FT   Protein         122..240
FT                   /label= Mature_protein
FT   Disulfide-bond  136..201
FT   Disulfide-bond  179..229
FT   Disulfide-bond  189..231
FT   Modified-site   69
FT                   /note= "N-glycosylated"
FT   Modified-site   114
FT                   /note= "N-glycosylated"
FT   Misc-difference 233..240
FT                   /note= "conflict, replaced by CSAGRLQEEA"
XX
PN   WO200203071-A2.
XX
PD   10-JAN-2002.
XX
PF   05-JUL-2001; 2001WO-US21472.
XX
PR   05-JUL-2000; 2000US-215778P.
XX
```

```
PA   (PANG-) PANGENE CORP.
XX
PI   Bates AT;
XX
DR   WPI; 2002-179638/23.
XX
PT   Screening for a neurotrophic factor mimetic, useful for treating, e.g.,
PT   cancer and Alzheimer's, comprises combining a candidate mimetic with a
PT   fragment of a tyrosine kinase protein -
XX
PS   Disclosure; Fig 5; 107pp; English.
XX
CC   The present sequence is that of murine beta-nerve growth factor
CC   (NGF), a neurotrophic factor (NTF) that binds to TrkA receptor
CC   tyrosine kinase. The invention concerns Trks and their ligands
CC   that modulate cell growth, differentiation and survival. Trk
CC   proteins are known to mediate the activities of neurotrophins and
CC   are also known proto-oncogenes. Methods are claimed for screening
CC   for small molecule NTF mimetics, such as the cyclic peptide given
CC   in AAM50844, capable of binding to a Trk protein or of modulating
CC   the binding of a neurotrophin to a Trk protein. Also claimed are
CC   medicaments comprising a small molecule NTF mimetic and their use
CC   in claimed methods for treatment of cancer or a neurodegenerative
CC   disease selected from Huntington's disease, Parkinson's disease,
CC   Alzheimer's disease and amyotrophic lateral sclerosis.
XX
SQ   Sequence   240 AA;

  Query Match             98.0%;  Score 640;  DB 23;  Length 240;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-65;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 240


RESULT 8
AAR21862
ID   AAR21862 standard; Protein; 132 AA.
XX
AC   AAR21862;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor NM1.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..4
FT                   /note= "mouse NGF preprosequence"
FT   Peptide         5..122
FT                   /note= "mouse NGF residues 1-118"
FT   Peptide         123..132
FT                   /note= "10 amino acid antigenic peptide fragment
FT                          of human myc protein"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 46; Fig 5; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) NM1 which
CC   comprises the preprosequence of mouse neurotrophic growth factor (NGF),
CC   residues 1-118 of mouse NGF and a 10 amino acid antigenic peptide
CC   fragment of human myc protein. It may provide the activity of 2 NFs
CC   in a single mol. or may serve as a superagonist of an endogenous NF
CC   thereby enabling an increased biological response at lower doses. It
CC   may also be useful in targeting an active cpd. to cells responsive to
CC   NF. The design of chimeric Nfs, such as NM1, which retain specific
CC   biological activity but which are directed to a subset of factor-
CC   responsive cells may enable treatment of neurological disorders but
CC   avoid the complications of more widespread activity of parent mols.
CC   It may be used in the treatment to eliminate diseased cells, e.g.
CC   virus infected cells or tumours of nervous system origin. It may also
CC   be used to treat patients whose nervous system has been damaged by
CC   trauma, surgery, ischemia, infection (e.g. polio or AIDS), metabolic
CC   disease, nutritional deficiency, malignancy or toxic agents. Also to
CC   treat e.g. Alzheimer's disease, ageing, peripheral neuropathies,
CC   Parkinson's disease, Huntington's chorea or amyotrophic lateral
CC   sclerosis. NM1 or antibodies to it can also be used in the diagnosis
CC   and study of nervous system disorders. See also AAR21851-R21874 and
CC   AAQ22080-Q22131.
XX
SQ   Sequence   132 AA;

  Query Match             97.9%;  Score 639;  DB 13;  Length 132;
  Best Local Similarity   99.2%;  Pred. No. 7.5e-66;
  Matches  119;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       5 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 64

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||| |
Db      65 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRGG 124


RESULT 9
AAR29493
ID   AAR29493 standard; Protein; 118 AA.
XX
AC   AAR29493;
XX
DT   22-APR-1993  (first entry)
XX
DE   NGF, mouse.
XX
KW   Neurotrophin; NT; nerve growth factor; NGF;
KW   brain-derived neurotrophic factor; BDNF.
XX
OS   Mus musculus.
XX
PN   WO9220365-A.
XX
PD   26-NOV-1992.
XX
PF   20-MAY-1992;   92WO-US04266.
XX
```

```
PR   21-MAY-1991;   91US-0703450.
PR   12-JUL-1991;   91US-0729253.
PR   23-JUL-1991;   91US-0734422.
PR   28-AUG-1991;   91US-0751356.
PR   20-SEP-1991;   91US-0762674.
PR   14-NOV-1991;   91US-0791924.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Hallbook F,  Ibanez Moliner CF,  Persson HB,  Yancopoulos GD;
XX
DR   WPI; 1992-415468/50.
XX
PT   Use of neurotrophin-4 for promoting growth and survival of nerve
PT   cells - useful in treating neurological, fertility and
PT   immunological disorders and in diagnosis
XX
PS   Disclosure; Page 105-106 + Fig 4B; 180pp; English.
XX
CC   A comparison of the mature NT-4 protein (Xenopus) to the mature
CC   NGF, BDNF, and NT-3 proteins from mouse revealed 51%, 60% and 58%
CC   amino acid identity respectively.  See sequences AAR29491 and
CC   AAR29493-95.
XX
SQ   Sequence   118 AA;

  Query Match             97.2%;  Score 635;  DB 13;  Length 118;
  Best Local Similarity   100.0%;  Pred. No. 1.9e-65;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 118


RESULT 10
AAR21864
ID   AAR21864 standard; Protein; 120 AA.
XX
AC   AAR21864;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S2.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..9
FT                   /note= "mouse NGF residues 1-9"
FT   Peptide         10..22
FT                   /note= "human BDNF residues 8-20"
FT   Peptide         23..120
FT                   /note= "mouse NGF residues 23-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 25; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S2 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-9,
CC   human brain derived growth factor (hBNDF) residues 8-20 and mouse NGF
CC   residues 23-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S2, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S2 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             96.9%;  Score 633;  DB 13;  Length 120;
  Best Local Similarity   97.5%;  Pred. No. 3.3e-65;
  Matches  117;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||  ||||:| ||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGELSVCDSISEWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 11
AAR21870
ID   AAR21870 standard; Protein; 120 AA.
XX
AC   AAR21870;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S8.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..68
FT                   /note= "mouse NGF residues 1-68"
FT   Peptide         69..80
FT                   /note= "human BDNF residues 69-80"
FT   Peptide         81..120
FT                   /note= "mouse NGF residues 81-120"
XX
```

```
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 31; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S8 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-68,
CC   human brain derived growth factor (hBNDF) residues 69-80 and mouse NGF
CC   residues 81-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S8, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S8 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             96.6%;  Score 631;  DB 13;  Length 120;
  Best Local Similarity   97.5%;  Pred. No. 5.6e-65;
  Matches  117;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           |||||||||||| :|||| ||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDKRHWNSQCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 12
AAR21866
ID   AAR21866 standard; Protein; 120 AA.
XX
AC   AAR21866;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S4.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..33
FT                   /note= "mouse NGF residues 1-33"
FT   Peptide         34..42
FT                   /note= "human BDNF residues 34-42"
FT   Peptide         43..120
FT                   /note= "mouse NGF residues 43-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 27; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S4 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-33,
CC   human brain derived growth factor (hBNDF) residues 34-42 and mouse NGF
CC   residues 43-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S4, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S4 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             95.6%;  Score 624;  DB 13;  Length 120;
  Best Local Similarity   96.7%;  Pred. No. 3.6e-64;
  Matches  116;  Conservative    1;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||  |||| :|||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGGTVTVLEKVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 13
AAR21871
ID   AAR21871 standard; Protein; 120 AA.
XX
AC   AAR21871;
XX
DT   10-JUN-1992  (first entry)
```

```
XX
DE   Chimeric neurotrophic factor S9.
XX
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..80
FT                   /note= "mouse NGF residues 1-80"
FT   Peptide         81..91
FT                   /note= "human BDNF residues 81-91"
FT   Peptide         92..120
FT                   /note= "mouse NGF residues 92-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 32; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S9 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-80,
CC   human brain derived growth factor (hBNDF) residues 81-91 and mouse NGF
CC   residues 92-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S9, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S9 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   120 AA;

  Query Match             95.3%;  Score 622;  DB 13;  Length 120;
  Best Local Similarity   95.8%;  Pred. No. 6.1e-64;
  Matches  115;  Conservative    3;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           |||||||||||||||||| || ::|:||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCRTTQSYVRALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120
```

```
RESULT 14
AAR54084
ID   AAR54084 standard; protein; 120 AA.
XX
AC   AAR54084;
XX
DT   10-NOV-1994  (first entry)
XX
DE   Nerve growth factor.
XX
KW   Nerve growth factor; NGF; chimeric neurotrophin; neurotrophic factor;
KW   brain-derived neurotrophic factor; BDNF; neurotrophin-3; NF-3;
KW   TrkA; TrkB; TrC; receptor; neurological disorder;
KW   Parkinson disease; Alzheimer disease.
XX
OS   Rattus sp.
XX
PN   WO9412539-A.
XX
PD   09-JUN-1994.
XX
PF   19-NOV-1993;   93WO-US11292.
XX
PR   20-NOV-1992;   92US-0979630.
XX
PA   (MCIN/) MCINTYRE K R.
XX
PI   Ibanez CFM,  Persson HB;
XX
DR   WPI; 1994-200202/24.
XX
PT   New chimeric neurotrophic factors and DNA - used to develop
PT   prods. for use in the treatment and diagnosis of neurological
PT   disorders
XX
PS   Disclosure; Page 48-49; 79pp; English.
XX
CC   Sequences are provided for rat nerve growth factor (AAR54084), rat
CC   brain-derived neurotrophic factor (AAR54085) and rat neurotrophin-3
CC   (AAR54086).  Chimeric neurotrophins capable of binding TrkA, TrkB and
CC   TrC are obtained by substituting amino acids 3-9, 28-37, 40-49,
CC   61-66, 81-88, 94-98 or 95-97 of a neurotrophin with corresponding
CC   amino acids from NGF, BDNF or NT-3.  Recombinant chimeric
CC   neurotrophins are used to treat e.g. Alzheimer disease and
CC   Parkinson disease.
XX
SQ   Sequence   120 AA;

  Query Match             94.6%;  Score 618;  DB 15;  Length 120;
  Best Local Similarity   94.2%;  Pred. No. 1.8e-63;
  Matches  113;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||| |||||||||:||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           |||||||||||||||::|||||||||||||:|||||||||||||||||||||||| |||
Db      61 PNPVESGCRGIDSKHWSNYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARRG 120


RESULT 15
AAR21872
ID   AAR21872 standard; Protein; 121 AA.
XX
AC   AAR21872;
XX
DT   10-JUN-1992  (first entry)
XX
DE   Chimeric neurotrophic factor S10.
XX
```

```
KW   Human BDNF; brain derived neurotrophic factor; NGF;
KW   neurotrophic growth factor; Alzheimer's disease; ageing;
KW   peripheral neuropathies; Parkinson's disease; Huntington's chorea;
KW   amyotrophic lateral sclerosis; nervous system disorders.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..91
FT                   /note= "mouse NGF residues 1-91"
FT   Peptide         92..102
FT                   /note= "human BDNF residues 92-102"
FT   Peptide         103..121
FT                   /note= "mouse NGF residues 102-120"
XX
PN   WO9202620-A.
XX
PD   20-FEB-1992.
XX
PF   07-AUG-1991;   91WO-US05610.
XX
PR   08-AUG-1990;   90US-0564929.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Shooter EM,  Suter U,  Ip N,  Squinto SP,  Furth ME,  Lindsay RM;
PI   Yancopoulous GD;
XX
DR   WPI; 1992-080074/10.
XX
PT   New chimeric neurotrophic factors - useful in treating nervous
PT   conditions caused by trauma, surgery, ischaemia, infection,
PT   metabolic diseases, nutritional deficiency, etc.
XX
PS   Claim 33; Fig 10; 114pp; English.
XX
CC   The sequence is that of a chimeric neurotrophic factor (NF) S10 which
CC   comprises the mouse neurotrophic growth factor (NGF) residues 1-91,
CC   human brain derived growth factor (hBNDF) residues 92-102 and mouse NGF
CC   residues 102-120. It may provide the activity of 2 NFs in a single mol.
CC   or may serve as a superagonist of an endogenous NF thereby enabling an
CC   increased biological response at lower doses. It may also be useful in
CC   targeting an active cpd. to cells responsive to NF. The design of
CC   chimeric Nfs, such as S10, which retain specific biological activity
CC   but which are directed to a subset of factor-responsive cells may
CC   enable treatment of neurological disorders but avoid the complications
CC   of more widespread activity of parent mols. It may be used in the
CC   treatment to eliminate diseased cells, e.g. virus infected cells or
CC   tumours of nervous system origin. It may also be used to treat patients
CC   whose nervous system has been damaged by trauma, surgery, ischemia,
CC   infection (e.g. polio or AIDS), metabolic disease, nutritional
CC   deficiency, malignancy or toxic agents. Also to treat e.g. Alzheimer's
CC   disease, ageing, peripheral neuropathies, Parkinson's disease,
CC   Huntington's chorea or amyotrophic lateral sclerosis. S10 or antibodies
CC   to it can also be used in the diagnosis and study of nervous system
CC   disorders. See also AAR21851-R21874 and AAQ22080-Q22131.
XX
SQ   Sequence   121 AA;

  Query Match             93.6%;  Score 611.5;  DB 13;  Length 121;
  Best Local Similarity   95.0%;  Pred. No. 1e-62;
  Matches  115;  Conservative    1;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATRR 120
           |||||||||||||||||||||||||||||| |  |:  ||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTMDSRKRIGWRFIRIDTACVCVLSRKATRR 120

Qy     121 G 121
           |

Db     121 G 121


Search completed: December  2, 2002, 15:08:38
Job time : 25.1149 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 9.64596 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	646	98.9	307	1	NGMSMG	nerve growth facto
2	626	95.9	245	2	I56570	beta-nerve growth
3	606	92.8	303	1	NGRTBA	nerve growth facto
4	593	90.8	241	2	JL0097	nerve growth facto
5	584	89.4	286	1	NGHUBM	nerve growth facto
6	583	89.3	229	2	I46614	nerve growth facto
7	571	87.4	125	2	A26312	nerve growth facto
8	546	83.6	243	2	A26311	nerve growth facto
9	532	81.5	235	2	S14481	nerve growth facto
10	475	72.7	117	2	S28161	nerve growth facto
11	471	72.1	243	2	I51193	nerve growth facto
12	436.5	66.8	116	1	NGNJXI	nerve growth facto
13	432.5	66.2	116	2	A58566	nerve growth facto
14	432.5	66.2	246	2	A59218	nerve growth facto
15	390	59.7	194	2	I51709	nerve growth facto
16	378.5	58.0	257	2	C40304	neurotrophin-3 pre
17	378.5	58.0	257	2	I50400	neurotrophin-3 pre
18	378.5	58.0	258	2	S09155	neurotrophin-3 pre
19	378.5	58.0	282	2	A35781	hippocampus-derive
20	347.5	53.2	286	2	S50855	neurotrophin-6 - s
21	325.5	49.8	247	2	A40304	brain-derived neur
22	325.5	49.8	249	2	S12555	brain-derived neur
23	325.5	49.8	249	2	B40304	brain-derived neur
24	325.5	49.8	252	2	A30361	brain-derived neur
25	320.5	49.1	114	2	I84765	brain-derived neur
26	319.5	48.9	248	2	JC6183	brain-derived neur
27	313.5	48.0	114	2	I50606	brain-derived neur
28	312.5	47.9	210	2	A42687	neurotrophin-4 pre
29	311.5	47.7	269	2	I51708	brain-derived neur
30	310.5	47.5	236	2	JH0400	neurotrophin-4 pre
31	307.5	47.1	209	2	B42687	neurotrophin-4 pre
32	304.5	46.6	114	2	I51599	brain-derived neur
33	81	12.4	229	2	C69806	hypothetical prote
34	79.5	12.2	475	2	T23355	hypothetical prote
35	76	11.6	478	2	D96603	probable phosphogl
36	74.5	11.4	116	2	S50449	hypothetical prote
37	74.5	11.4	425	2	S26623	phosphoglycerate k
38	73.5	11.3	499	2	S53637	protein kinase clk
39	73.5	11.3	693	2	T26415	hypothetical prote
40	72	11.0	399	2	S71368	phosphoglycerate k
41	71.5	10.9	835	2	C97322	probable alpha-ara
42	71	10.9	166	2	S55496	fimbrial protein p
43	71	10.9	331	1	A54932	zeta-crystallin /
44	70.5	10.8	290	2	S19426	hypothetical prote
45	69	10.6	3083	2	AH2493	hypothetical prote

ALIGNMENTS

RESULT 1
NGMSMG
nerve growth factor beta chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Nov-1980 #sequence_revision 19-Feb-1984 #text_change 21-Jul-2000
C;Accession: A93301; A93305; A90366; I49689; I52891; A01400; I49690
R;Scott, J.; Selby, M.; Urdea, M.; Quiroga, M.; Bell, G.I.; Rutter, W.J.
Nature 302, 538-540, 1983
A;Title: Isolation and nucleotide sequence of a cDNA encoding the precursor of mouse
A;Reference number: A93301; MUID:83167518; PMID:6336309
A;Accession: A93301
A;Molecule type: mRNA
A;Residues: 1-307 <SCO>
A;Cross-references: GB:V00836; NID:g53364; PIDN:CAA24221.1; PID:g53365
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A93305
A;Molecule type: mRNA
A;Residues: 1-307 <ULL>
A;Cross-references: GB:K01759; NID:g200051; PIDN:AAA39820.1; PID:g387495
A;Note: these authors believe that Met-67 is probably the amino-terminal residue and
R;Angeletti, R.H.; Hermodson, M.A.; Bradshaw, R.A.
Biochemistry 12, 100-115, 1973
A;Title: Amino acid sequences of mouse 2.5S nerve growth factor. II. Isolation and ch
A;Reference number: A90366; MUID:73075048; PMID:4566923
A;Accession: A90366
A;Molecule type: protein
A;Residues: 188-216,'N',218-305 <ANG>
R;Selby, M.J.; Edwards, R.; Sharp, F.; Rutter, W.J.
Mol. Cell. Biol. 7, 3057-3064, 1987
A;Title: Mouse nerve growth factor gene: Structure and expression.
A;Reference number: I49689; MUID:88038855; PMID:3670305
A;Accession: I49689
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-307 <RES>
A;Cross-references: GB:M17298; NID:g193493; PIDN:AAA37687.1; PID:g467311
R;Ullrich, A.; Gray, A.; Berman, C.H.; Coussens, L.; Dull, T.J.
Cold Spring Harb. Symp. Quant. Biol. 48, 435-442, 1983
A;Title: Sequence homology of human and mouse beta-NGF subunit genes.
A;Reference number: I52891; MUID:84206565; PMID:6327169
A;Accession: I52891
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-307 <RE3>
A;Cross-references: GB:M14805; NID:g200053; PIDN:AAA39821.1; PID:g200054
C;Comment: The active molecule is a dimer of identical chains associated by noncovale
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:

```
A;Gene: NGFB
A;Introns: 21/2; 62/3
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer
F;1-187/Domain: signal sequence and propeptide #status predicted <SIG>
F;188-305/Product: nerve growth factor beta chain #status experimental <MAT>
F;135,180/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;202-267,245-295,255-297/Disulfide bonds: #status experimental
F;232/Binding site: carbohydrate (Asn) (covalent) #status absent

  Query Match             98.9%;  Score 646;  DB 1;  Length 307;
  Best Local Similarity   100.0%;  Pred. No. 1.8e-59;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 307


RESULT 2
I56570
beta-nerve growth factor - rat (fragment)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C;Accession: I56570
R;Whittemore, S.R.; Friedman, P.L.; Larhammar, D.G.; Persson, H.; Gonzalez-Carvajal, M.;
J. Neurosci. Res. 20, 403-410, 1988
A;Title: Rat beta-nerve growth factor sequence and site of synthesis in the adult hippoc
A;Reference number: I56570; MUID:89037223; PMID:3184206
A;Accession: I56570
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-245 <RES>
A;Cross-references: GB:M36589; NID:g205691; PIDN:AAA41697.1; PID:g205692
C;Superfamily: nerve growth factor beta chain

  Query Match             95.9%;  Score 626;  DB 2;  Length 245;
  Best Local Similarity   95.8%;  Pred. No. 1.7e-57;
  Matches  115;  Conservative    2;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||||||||||||||||||||||||||||||||||||| |||||||||:||||||||||
Db    126 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 185

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
          ||||||||||||||||||||||||||||||||:||||||||||||||||||| |||
Db    186 PNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARRG 245


RESULT 3
NGRTBA
nerve growth factor beta chain precursor - multimammate rat (Mastomys natalensis)
C;Species: Mastomys natalensis
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 18-Jun-1999
C;Accession: JT0343
R;Fahnestock, M.; Bell, R.A.
Gene 69, 257-264, 1988
A;Title: Molecular cloning of a cDNA encoding the nerve growth factor precursor from Mas
A;Reference number: JT0343; MUID:89172070; PMID:3234767
A;Accession: JT0343
A;Molecule type: mRNA
A;Residues: 1-303 <FAH>
A;Cross-references: GB:M22748; NID:g202514; PIDN:AAA40599.1; PID:g202515
A;Note: it is uncertain whether Met-1 or Met-63 is the initiator
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer; submaxillary gland
F;184-301/Product: nerve growth factor beta chain #status predicted <MAT>
F;131,176,220/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;198-263,241-291,251-293/Disulfide bonds: #status predicted

  Query Match             92.8%;  Score 606;  DB 1;  Length 303;
  Best Local Similarity   92.5%;  Pred. No. 2.5e-55;
  Matches  111;  Conservative    4;  Mismatches    5;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||||||| |||||||||||||||||||||||| ||||| |||||||||:||||||||||
Db    184 SSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCRA 243

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
          |||||||||||||||||||||||||||||||::||||||||||||||||:||| |||
Db    244 RNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRRG 303


RESULT 4
JL0097
nerve growth factor beta chain precursor - guinea pig
C;Species: Cavia porcellus (guinea pig)
C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 15-Mar-1996
C;Accession: JL0097
R;Schwarz, M.A.; Fisher, D.; Bradshaw, R.A.; Isackson, P.J.
J. Neurochem. 52, 1203-1209, 1989
A;Title: Isolation and sequence of a cDNA clone of beta-nerve growth factor from the
A;Reference number: JL0097; MUID:89177243; PMID:2926397
A;Accession: JL0097
A;Molecule type: mRNA
A;Residues: 1-241 <SCH>
A;Note: the authors translated the codon GCU for residue 214 as Asp
C;Genetics:
A;Gene: Beta-NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; hormone
F;1-121/Domain: propeptide #status predicted <PRO>
F;122-241/Product: nerve growth factor beta chain #status predicted <MAT>
F;146-154/Region: receptor binding #status predicted
F;69,114/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             90.8%;  Score 593;  DB 2;  Length 241;
  Best Local Similarity   90.0%;  Pred. No. 4.4e-54;
  Matches  108;  Conservative    6;  Mismatches    6;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          |||||||||||||||||||| ||||||||||||||||||:||:||:|||||||||
Db    122 SSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRD 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
            :||:|||||||||||||||||||||  ||||||||||||||:||| |||
Db    182 PSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARRG 241


RESULT 5
NGHUBM
nerve growth factor beta chain precursor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 19-Feb-1984 #sequence_revision 19-Feb-1984 #text_change 18-Jun-1999
C;Accession: A01399; S10253
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A01399
A;Molecule type: DNA
A;Residues: 1-286 <ULL>
R;Borsani, G.; Pizzuti, A.; Rugarli, E.I.; Falini, A.; Silàni, V.; Sidoli, A.; Scarla
Nucleic Acids Res. 18, 4020, 1990
A;Title: cDNA sequence of human beta-NGF.
A;Reference number: S10253; MUID:90326556; PMID:2374737
A;Accession: S10253
A;Status: translation not shown
A;Molecule type: mRNA
A;Residues: 46-286 <BOR>
A;Cross-references: EMBL:X52599; NID:g29476; PIDN:CAA36832.1; PID:g29477
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
```

```
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels may
C;Genetics:
A;Gene: GDB:NGFB
A;Cross-references: GDB:120233; OMIM:162030
A;Map position: 1p13.1-1p13.1
A;Introns: 41/3
C;Complex: nerve growth factor is composed of two alpha chains, two beta chains, and two
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; submandibular gland
F;1-166/Domain: signal sequence and propeptide (fragment) #status predicted <SIG>
F;167-284/Product: nerve growth factor beta chain #status predicted <MAT>
F;26,114,159,211/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;181-246,224-274,234-276/Disulfide bonds: #status predicted

  Query Match             89.4%;  Score 584;  DB 1;  Length 286;
  Best Local Similarity   89.9%;  Pred. No. 4.5e-53;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db     167 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 226

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||| | |||||||||||||||||| ||
Db     227 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 285


RESULT 6
I46614
nerve growth factor B - pig (fragment)
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 21-Feb-1997 #sequence_revision 21-Feb-1997 #text_change 16-Jul-1999
C;Accession: I46614
R;Lahbib-Mansais, Y.; Mellink, C.; Yerle, M.; Gellin, J.
Cytogenet. Cell Genet. 67, 120-125, 1994
A;Title: A new marker (NGFB) on pig chromosome 4, isolated by using consensus sequence o
A;Reference number: I46614; MUID:94313891; PMID:8039422
A;Accession: I46614
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-229 <LAH>
A;Cross-references: GB:L31898; NID:g476732; PIDN:AAA21301.1; PID:g533771
C;Genetics:
A;Gene: NGFB
C;Superfamily: nerve growth factor beta chain

  Query Match             89.3%;  Score 583;  DB 2;  Length 229;
  Best Local Similarity   90.8%;  Pred. No. 4.5e-53;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||||| |||||||||||||||||||||||| || |||||||||:|||||||||
Db     110 SSSHPVFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 169

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||| | |||||||||||||||||| ||
Db     170 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRR 228


RESULT 7
A26312
nerve growth factor beta chain precursor - bovine (fragment)
C;Species: Bos primigenius taurus (cattle)
C;Date: 19-Nov-1988 #sequence_revision 19-Nov-1988 #text_change 16-Jul-1999
C;Accession: A26312
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation of
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: A26312
A;Molecule type: mRNA
A;Residues: 1-125 <MEI>
A;Cross-references: GB:M26809; NID:g163419; PIDN:AAA30666.1; PID:g163420
C;Comment: Nerve growth factor stimulates neurite outgrowth from sympathetic and embr
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; seminal vesicle
F;6-125/Product: nerve growth factor #status predicted <MAT>
F;20-85,63-113,73-115/Disulfide bonds: #status predicted

  Query Match             87.4%;  Score 571;  DB 2;  Length 125;
  Best Local Similarity   87.4%;  Pred. No. 4.1e-52;
  Matches  104;  Conservative    6;  Mismatches    9;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||||| |||||||||:|||||||||||||||| || |||||||||:|||||||||
Db       6 SSSHPVFHRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 65

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:|||||||:|||||||||||||||| | |||||||||||||||||  :|
Db      66 PNPVDSGCRGIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKTGQR 124


RESULT 8
A26311
nerve growth factor beta chain precursor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 21-Jul-2000
C;Accession: A26311; A24857; S00127; S12532
R;Ebendal, T.; Larhammar, D.; Persson, H.
EMBO J. 5, 1483-1487, 1986
A;Title: Structure and expression of the chicken beta nerve growth factor gene.
A;Reference number: A26311; MUID:86300646; PMID:3017695
A;Accession: A26311
A;Molecule type: mRNA
A;Residues: 1-243 <EBE>
A;Cross-references: GB:X04003; NID:g63697; PIDN:CAA27633.1; PID:g1334740
R;Wion, D.; Perret, C.; Frechin, N.; Keller, A.; Behar, G.; Brachet, P.; Auffray, C.
FEBS Lett. 203, 82-86, 1986
A;Title: Molecular cloning of the avian beta-nerve growth factor gene: transcription
A;Reference number: A24857; MUID:86248129; PMID:3720959
A;Accession: A24857
A;Molecule type: DNA
A;Residues: 118-243 <WIO>
A;Cross-references: GB:D00010; GB:N00010; GB:X04067; NID:g222840; PIDN:BAA00008.1; PI
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: S00127
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 121-243 <MEI>
A;Cross-references: GB:M26810; NID:g212446; PIDN:AAA48984.1; PID:g212447
R;Ibanez, C.F.; Hallboeoek, F.; Ebendal, T.; Persson, H.
EMBO J. 9, 1477-1483, 1990
A;Title: Structure-function studies of nerve growth factor: functional importance of
A;Reference number: S12532; MUID:90228346; PMID:2328722
A;Accession: S12532
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 126-243 <IBA>
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor
F;1-125/Domain: signal sequence #status predicted <SIG>
F;126-243/Product: nerve growth factor beta chain #status predicted <MAT>

  Query Match             83.6%;  Score 546;  DB 2;  Length 243;
  Best Local Similarity   84.6%;  Pred. No. 3.3e-49;
  Matches   99;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy       3 STHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRAS 62
           : ||| | ||||||||||:|||||||||||||||||| ||||||:||:|||||||||
Db     126 TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDP 185

Qy      63 NPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
           || |||||||:|||||||||||||||| : |||||||||||||||||: |
```

```
Db    186 RPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 9
S14481
nerve growth factor beta chain precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 16-Jul-1999
C;Accession: S14481
R;Carriero, F.; Campioni, M.; Cardinali, B.; Pierandrei-Amaldi, P.
submitted to the EMBL Data Library, October 1990
A;Description: Structure and expression of the nerve growth gene in Xenopus oocyte and e
A;Reference number: S14481
A;Accession: S14481
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-235 <CAR>
A;Cross-references: EMBL:X55716; NID:g64914; PIDN:CAA39249.1; PID:g64915
C;Superfamily: nerve growth factor beta chain

  Query Match             81.5%;  Score 532;  DB 2;  Length 235;
  Best Local Similarity   84.2%;  Pred. No. 9.2e-48;
  Matches   96;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy       3 STHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRAS 62
           : ||| | ||:|||||||:|||:|| |||||||||||| |||||||||:|||||||||
Db     119 TVHPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDP 178

Qy      63 NPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           || |||||||:|||||||||||||||||| : ||||||||||||||||||||
Db     179 KPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRK 232


RESULT 10
S28161
nerve growth factor beta chain - Russell's viper
C;Species: Vipera russelli (Russell's viper)
C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997 #text_change 31-Oct-1997
C;Accession: S28161
R;Koyama, J.; Inoue, S.; Ikeda, K.; Hayashi, K.
Biochim. Biophys. Acta 1160, 287-292, 1992
A;Title: Purification and amino-acid sequence of a nerve growth factor from the venom of
A;Reference number: S28161; MUID:93120151; PMID:1477101
A;Accession: S28161
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-117 <KOY>
C;Superfamily: nerve growth factor beta chain

  Query Match             72.7%;  Score 475;  DB 2;  Length 117;
  Best Local Similarity   73.2%;  Pred. No. 3.6e-42;
  Matches   82;  Conservative   17;  Mismatches   13;  Indels    0;  Gaps    0;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
           ||| : |||||||||||| :|||||::|  |||: :||:||:|:::|||||||:  ||
Db       1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           | |||||||:|||||||||| |||:||| :  ||:||||||:||||||:|||
Db      61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 11
I51193
nerve growth factor precursor - many-banded krait
C;Species: Bungarus multicinctus (many-banded krait)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51193
R;Danse, J.M.; Garnier, J.M.
Growth Factors 8, 77-86, 1993
A;Title: Molecular cloning of a cDNA encoding a nerve growth factor precursor from the k
A;Reference number: I51193; MUID:93192074; PMID:7916740
A;Accession: I51193
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-243 <DAN>
A;Cross-references: GB:S56212; NID:g266298; PIDN:AAB25729.1; PID:g266299
C;Superfamily: nerve growth factor beta chain

  Query Match             72.1%;  Score 471;  DB 2;  Length 243;
  Best Local Similarity   72.2%;  Pred. No. 2.1e-41;
  Matches   83;  Conservative   14;  Mismatches   18;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           :  ||| : || |||||:|||| :|| |||||  |||: :||:|| |::||||||||||
Db     125 NENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFFETKCRN 184

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           ||| |||||||||:|||||||| |||||| :  :|:|||||||||||||:|||
Db     185 PNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISRK 239


RESULT 12
NGNJXI
nerve growth factor - Indian cobra
C;Species: Naja naja naja (Indian cobra)
C;Date: 30-Nov-1980 #sequence_revision 25-Apr-1997 #text_change 17-Mar-2000
C;Accession: S13927; A01401
R;Inoue, S.; Oda, T.; Koyama, J.; Ikeda, K.; Hayashi, K.
FEBS Lett. 279, 38-40, 1991
A;Title: Amino acid sequences of nerve growth factors derived from cobra venoms.
A;Reference number: S13927; MUID:91138755; PMID:1995338
A;Accession: S13927
A;Molecule type: protein
A;Residues: 1-116 <INO>
A;Experimental source: venom
A;Note: the source is designated as Naja naja and referred to as Indian cobra, so we
R;Hogue-Angeletti, R.A.; Frazier, W.A.; Jacobs, J.W.; Niall, H.D.; Bradshaw, R.A.
Biochemistry 15, 26-34, 1976
A;Title: Purification, characterization, and partial amino acid sequence of nerve gro
A;Reference number: A01401; MUID:76114772; PMID:1247508
A;Accession: A01401
A;Molecule type: protein
A;Residues: 1-11,'P',13-14,'B',16,'TBT';20-21,'GV';23-27,'N',29-31;'AS',34,'S';36-48,
15-116 <HOG>
A;Experimental source: venom
A;Note: the source is designated as Naja naja and referred to as Indian cobra, so we
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathe
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;14-78,56-106,66-108/Disulfide bonds: #status predicted

  Query Match             66.8%;  Score 436.5;  DB 1;  Length 116;
  Best Local Similarity   69.6%;  Pred. No. 3.6e-38;
  Matches   78;  Conservative   14;  Mismatches   19;  Indels    1;  Gaps    1;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
           ||| ::|| ||||||| ||  |||||||||  |||:  ||::| |::|||||||:  ||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 61

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
              |||||||| ||||||| | ||:|||| :  ||:|||||||||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIDTACVCVITKK 113


RESULT 13
A58566
nerve growth factor - Chinese cobra
C;Species: Naja naja atra (Chinese cobra)
C;Date: 16-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 25-Apr-1997
C;Accession: A58566
R;Oda, T.; Ohta, M.; Inoue, S.; Ikeda, K.; Furukawa, S.; Hayashi, K.
Biochem. Int. 19, 909-917, 1989
A;Title: Amino acid sequence of nerve growth factor purified from the venom of the Fo
A;Reference number: A58566; MUID:90147847; PMID:2619756
```

```
A;Accession: A58566
A;Molecule type: protein
A;Residues: 1-116 <ODA>
A;Experimental source: venom
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathetic
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;14-78,56-106,66-108/Disulfide bonds: #status predicted

  Query Match             66.2%;  Score 432.5;  DB 2;  Length 116;
  Best Local Similarity   68.8%;  Pred. No. 9.2e-38;
  Matches   77;  Conservative   15;  Mismatches   19;  Indels    1;  Gaps    1;

Qy      5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
          ||| ::|| ||||||| ||  |||||||||  |||:  ||::| |::|||||||||:  ||
Db      3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 61

Qy     65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
          |||||||| ||||||| | ||:|||| :  ||:||||||:||||||:::|
Db     62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 113


RESULT 14
A59218
nerve growth factor beta chain precursor - monocled cobra
C;Species: Naja naja kaouthia, Naja naja siamensis (monocled cobra)
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 31-Mar-2000
C;Accession: A59218; S13965
R;Selby, M.J.; Edwards, R.H.; Rutter, W.J.
J. Neurosci. Res. 18, 293-298, 1987
A;Title: Cobra nerve growth factor: structure and evolutionary comparison.
A;Reference number: A59218; MUID:88090976; PMID:3694712
A;Accession: A59218
A;Molecule type: mRNA
A;Residues: 1-246 <SEL>
R;Inoue, S.; Oda, T.; Koyama, J.; Ikeda, K.; Hayashi, K.
FEBS Lett. 279, 38-40, 1991
A;Title: Amino acid sequences of nerve growth factors derived from cobra venoms.
A;Reference number: S13927; MUID:91138755; PMID:1995338
A;Accession: S13965
A;Molecule type: protein
A;Residues: 131-246 <INO>
A;Experimental source: venom
C;Comment: Nerve growth factor is necessary for the development of embryonic sympathetic
C;Complex: homodimer
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; venom
F;1-23/Domain: signal sequence #status predicted <SIG>
F;131-246/Product: nerve growth factor beta chain #status experimental <MAT>
F;144-208,186-236,196-238/Disulfide bonds: #status predicted

  Query Match             66.2%;  Score 432.5;  DB 2;  Length 246;
  Best Local Similarity   68.8%;  Pred. No. 2.1e-37;
  Matches   77;  Conservative   15;  Mismatches   19;  Indels    1;  Gaps    1;

Qy      5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
          ||| ::|| ||||||| ||  |||||||||  |||:  ||::| |::|||||||||:  ||
Db    133 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKQYFFETKCKNPNP 191

Qy     65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
          |||||||| ||||||| | ||:|||| :  ||:||||||:||||||:::|
Db    192 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 243


RESULT 15
I51709
nerve growth factor beta chain precursor - southern platyfish
C;Species: Xiphophorus maculatus (southern platyfish)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51709; S26674
R;Gotz, R.; Raulf, F.; Schartl, M.
J. Neurochem. 59, 432-442, 1992
A;Title: Brain-derived neurotrophic factor is more highly conserved in structure and
A;Reference number: I51708; MUID:92333301; PMID:1629719
A;Accession: I51709
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-194 <GOT>
A;Cross-references: EMBL:X59941; NID:g65277; PIDN:CAA42566.1; PID:g65278
C;Genetics:
A;Gene: NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor
F;1-14/Domain: signal sequence #status predicted <SIG>
F;15-79/Domain: propeptide #status predicted <PRO>
F;80-194/Product: nerve growth factor beta chain #status predicted <MAT>
F;90-155,133-183,143-185/Disulfide bonds: #status predicted
F;99/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             59.7%;  Score 390;  DB 2;  Length 194;
  Best Local Similarity   66.1%;  Pred. No. 4.2e-33;
  Matches   72;  Conservative   13;  Mismatches   24;  Indels    0;  Gaps    0;

Qy      9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
          | | :|||:|||||||:|| |||| |||||||  |||||   :|||||| | :     |
Db     83 HRGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSR 142

Qy     69 CRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKA 117
          | |||::||||:|| :||||:|||: | | ||| |||: |||||||||:
Db    143 CLGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191


Search completed: December  2, 2002, 15:13:58
Job time : 9.64596 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 4.96483 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	646	98.9	241	1	NGF_MOUSE	P01139 mus musculu
2	626	95.9	241	1	NGF_RAT	P25427 rattus norv
3	606	92.8	241	1	NGF_PRANA	P20675 praomys nat
4	593	90.8	241	1	NGF_CAVPO	P19093 cavia porce
5	584	89.4	241	1	NGF_HUMAN	P01138 homo sapien
6	583	89.3	229	1	NGF_PIG	Q29074 sus scrofa
7	564	86.4	231	1	NGF_BOVIN	P13600 bos taurus
8	546	83.6	243	1	NGF_CHICK	P05200 gallus gall
9	532	81.5	231	1	NGF_XENLA	P21617 xenopus lae
10	475	72.7	117	1	NGF_DABRR	P30894 daboia russ
11	471	72.1	243	1	NGF_BUNMU	P34128 bungarus mu
12	433.5	66.4	116	1	NGF_NAJNA	P01140 naja naja (
13	429.5	65.8	116	1	NGF_NAJAT	P21377 naja atra (
14	390	59.7	194	1	NGF_XIPMA	P34129 xiphophorus
15	379.5	58.1	140	1	NT7_CYPCA	O93474 cyprinus ca
16	378.5	58.0	257	1	NT3_CHICK	P25433 gallus gall
17	378.5	58.0	257	1	NT3_HUMAN	P20783 homo sapien
18	378.5	58.0	258	1	NT3_MOUSE	P20181 mus musculu
19	378.5	58.0	258	1	NT3_RAT	P18280 rattus norv
20	377.5	57.8	260	1	NT3_XENLA	P25435 xenopus lae
21	374.5	57.4	233	1	NT7_BRARE	O73797 brachydanio
22	374.5	57.4	257	1	NT3_FELCA	Q9tst2 felis silve
23	326.5	50.0	255	1	BDNF_CAVPO	O70183 cavia porce
24	325.5	49.8	247	1	BDNF_HUMAN	P23560 homo sapien
25	325.5	49.8	247	1	BDNF_PROLO	O18755 procyon lot
26	325.5	49.8	247	1	BDNF_URSAR	O18752 ursus arcto
27	325.5	49.8	247	1	BDNF_URSML	O18753 ursus malay
28	325.5	49.8	249	1	BDNF_MOUSE	P21237 mus musculu
29	325.5	49.8	249	1	BDNF_RAT	P23363 rattus norv
30	325.5	49.8	252	1	BDNF_PIG	P14082 sus scrofa
31	321.5	49.2	247	1	BDNF_FELCA	Q9tst3 felis silve
32	320.5	49.1	114	1	BDNF_MACMU	Q06225 macaca mula
33	319.5	48.9	248	1	BDNF_BOVIN	Q95106 bos taurus
34	319.5	48.9	270	1	BDNF_CYPCA	Q90322 cyprinus ca
35	318.5	48.8	246	1	BDNF_CHICK	P25429 gallus gall
36	312.5	47.9	210	1	NT5_HUMAN	P34130 homo sapien
37	311.5	47.7	269	1	BDNF_XIPMA	Q02193 xiphophorus
38	310.5	47.5	236	1	NT4_XENLA	P24727 xenopus lae
39	307.5	47.1	209	1	NT5_RAT	P34131 rattus norv
40	304.5	46.6	114	1	BDNF_XENLA	P25432 xenopus lae
41	229	35.1	257	1	NT6B_HUMAN	P34133 homo sapien
42	224	34.3	186	1	NT6G_HUMAN	P34134 homo sapien
43	222	34.0	257	1	NT6A_HUMAN	P34132 homo sapien
44	165	25.3	42	1	NGF_VIPLE	P25428 vipera lebe
45	130	19.9	43	1	NT3_RAJCL	P25434 raja clavat

ALIGNMENTS

RESULT 1
NGF_MOUSE
ID NGF_MOUSE STANDARD; PRT; 241 AA.
AC P01139; Q63864;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Beta-nerve growth factor precursor (Beta-NGF).
GN NGFB.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83167518; PubMed=6336309;
RA Scott J., Selby M.J., Urdea M.S., Quiroga M., Bell G.I., Rutter W.J.;
RT "Isolation and nucleotide sequence of a cDNA encoding the precursor
RT of mouse nerve growth factor.";
RL Nature 302:538-540(1983).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=83244969; PubMed=6688123;
RA Ullrich A., Gray A., Berman C., Dull T.J.;
RT "Human beta-nerve growth factor gene sequence highly homologous to
RT that of mouse.";
RL Nature 303:821-825(1983).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=84206565; PubMed=6327169;
RA Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT "Sequence homology of human and mouse beta-NGF subunit genes.";
RL Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN [4]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6; TISSUE=Submaxillary gland;
RX MEDLINE=88038855; PubMed=3670305;
RA Selby M.J., Edwards R., Sharp F., Rutter W.J.;
RT "Mouse nerve growth factor gene: structure and expression.";
RL Mol. Cell. Biol. 7:3057-3064(1987).
RN [5]
RP SEQUENCE FROM N.A.
RX MEDLINE=93264918; PubMed=1284621;
RA Yamamoto T., Yamakuni T., Okabe N., Amano T.;
RT "Production and secretion of nerve growth factor by clonal striated
RT muscle cell line, G8-1.";
RL Neurochem. Int. 21:251-258(1992).
RN [6]
RP SEQUENCE OF 122-239.
RX MEDLINE=73075048; PubMed=4566923;
RA Angeletti R.H., Hermodson M.A., Bradshaw R.A.;
RT "Amino acid sequences of mouse 2.5S nerve growth factor. II.
RT Isolation and characterization of the thermolytic and peptic peptides
RT and the complete covalent structure.";
RL Biochemistry 12:100-115(1973).
RN [7]

```
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=92065986; PubMed=1956407;
RA   McDonald N.Q., Lapatto R., Murray-Rust J., Gunning J., Wlodawer A.,
RA   Blundell T.L.;
RT   "New protein fold revealed by a 2.3-A resolution crystal structure of
RT   nerve growth factor.";
RL   Nature 354:411-414(1991).
RN   [8]
RP   X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
RX   MEDLINE=94260545; PubMed=8201620;
RA   Holland D.R., Cousens L.S., Meng W., Matthews B.W.;
RT   "Nerve growth factor in different crystal forms displays structural
RT   flexibility and reveals zinc binding sites.";
RL   J. Mol. Biol. 239:385-400(1994).
RN   [9]
RP   X-RAY CRYSTALLOGRAPHY (3.15 ANGSTROMS) OF 7S COMPLEX.
RC   STRAIN=Swiss Webster; TISSUE=Submaxillary gland;
RX   MEDLINE=98035451; PubMed=9351801;
RA   Bax B., Blundell T.L., Murray-Rust J., McDonald N.Q.;
RT   "Structure of mouse 7S NGF: a complex of nerve growth factor with
RT   four binding proteins.";
RL   Structure 5:1275-1285(1997).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M35075; AAA39818.1; ALT_INIT.
DR   EMBL; V00836; CAA24221.1; ALT_INIT.
DR   EMBL; K01759; AAA39820.1; ALT_INIT.
DR   EMBL; M14805; AAA39821.1; ALT_INIT.
DR   EMBL; M17298; AAA37687.1; ALT_INIT.
DR   EMBL; M17296; AAA37687.1; JOINED.
DR   EMBL; M17297; AAA37687.1; JOINED.
DR   EMBL; S62089; CAB32081.2; ALT_SEQ.
DR   PIR; A01400; NGMSMG.
DR   PDB; 1BET; 31-MAY-94.
DR   PDB; 1BTG; 08-MAR-96.
DR   PDB; 1SGF; 27-MAY-98.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; 3D-structure.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201
FT   DISULFID   179    229
FT   DISULFID   189    231
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT   233    241       LSRKATRRG -> CSAGRLQEEA (IN REF. 5).
SQ   SEQUENCE   241 AA;  27076 MW;  164465E1DC550081 CRC64;

  Query Match             98.9%;  Score 646;  DB 1;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-62;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     122 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     182 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 241


RESULT 2
NGF_RAT
ID   NGF_RAT         STANDARD;      PRT;   241 AA.
AC   P25427;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89037223; PubMed=3184206;
RA   Whittemore S.R., Friedman P.L., Larhammar D.G., Persson H.,
RA   Gonzalez-Carvajal M., Holets V.R.;
RT   "Rat beta-nerve growth factor sequence and site of synthesis in the
RT   adult hippocampus.";
RL   J. Neurosci. Res. 20:403-410(1988).
RN   [2]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M36589; AAA41697.1; ALT_INIT.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121       POTENTIAL.
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27009 MW;  665F42371563213D CRC64;
```

```
  Query Match             95.9%;  Score 626;  DB 1;  Length 241;
  Best Local Similarity   95.8%;  Pred. No. 2.1e-60;
  Matches  115;  Conservative    2;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          |||||||||||||||||||||||||||||||||||||||| |||||||||:||||||||||
Db    122 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
          ||||||||||||||||||||||||||||:||||||||||||||||||||| |||
Db    182 PNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARRG 241


RESULT 3
NGF_PRANA
ID   NGF_PRANA      STANDARD;      PRT;   241 AA.
AC   P20675;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Praomys natalensis (African soft-furred rat) (Mastomys natalensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC   Mastomys.
OX   NCBI_TaxID=10112;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89172070; PubMed=3234767;
RA   Fahnestock M., Bell R.A.;
RT   "Molecular cloning of a cDNA encoding the nerve growth factor
RT   precursor from Mastomys natalensis.";
RL   Gene 69:257-264(1988).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M22748; AAA40599.1; ALT_INIT.
DR   PIR; JT0343; NGRTBA.
DR   HSSP; P01139; 1BTG.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27035 MW;  8BFBB207A1FFB2F7 CRC64;

  Query Match             92.8%;  Score 606;  DB 1;  Length 241;
  Best Local Similarity   92.5%;  Pred. No. 3e-58;
  Matches  111;  Conservative    4;  Mismatches    5;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||||||| |||||||||||||||||||||||| ||||| |||||||||:||||||||||
Db    122 SSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFETKCRA 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
          ||||||||||||||||||||||||||||::||||||||||||||:||| |||
Db    182 RNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQAAWRFIRIDTACVCVLTRKAPRRG 241


RESULT 4
NGF_CAVPO
ID   NGF_CAVPO      STANDARD;      PRT;   241 AA.
AC   P19093;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Prostate;
RX   MEDLINE=89177243; PubMed=2926397;
RA   Schwarz M.A., Fisher D., Bradshaw R.A., Isackson P.J.;
RT   "Isolation and sequence of a cDNA clone of beta-nerve growth factor
RT   from the guinea pig prostate gland.";
RL   J. Neurochem. 52:1203-1209(1989).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; JL0097; JL0097.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26821 MW;  2F4E26B197804BF4 CRC64;

  Query Match             90.8%;  Score 593;  DB 1;  Length 241;
  Best Local Similarity   90.0%;  Pred. No. 7.7e-57;
  Matches  108;  Conservative    6;  Mismatches    6;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          |||||||||||||||||||| |||||||||||||||:||:||:|||||||||
Db    122 SSTHPVFHMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRD 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
            :||:|||||||||||||||||||||||  ||||||||||||||:||| |||
Db    182 PSPVDSGCRGIDSKHWNSYCTTTHTFVKALTTANKQAAWRFIRIDTACVCVLNRKAARRG 241


RESULT 5
```

```
NGF_HUMAN
ID   NGF_HUMAN      STANDARD;      PRT;   241 AA.
AC   P01138;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-JAN-1990 (Rel. 13, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83244969; PubMed=6688123;
RA   Ullrich A., Gray A., Berman C., Dull T.J.;
RT   "Human beta-nerve growth factor gene sequence highly homologous to
RT   that of mouse.";
RL   Nature 303:821-825(1983).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=84206565; PubMed=6327169;
RA   Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT   "Sequence homology of human and mouse beta-NGF subunit genes.";
RL   Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=90326556; PubMed=2374737;
RA   Borsani G., Pizzuti A., Rugarli E.I., Falini A., Silani V.,
RA   Sidoli A., Scarlato G., Barelle F.E.;
RT   "cDNA sequence of human beta-NGF.";
RL   Nucleic Acids Res. 18:4020-4020(1990).
RN   [4]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   TISSUE=Leukocyte;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V01511; CAA24755.1; -.
DR   EMBL; M21062; AAA59931.1; -.
DR   EMBL; X52599; CAA36832.1; -.
DR   PIR; A01399; NGHUBM.
DR   PIR; S10253; S10253.
DR   HSSP; P01139; 1BET.
DR   Genew; HGNC:7808; NGFB.
DR   MIM; 162030; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26987 MW;  CF1DB4DC6B736B0F CRC64;
```

```
  Query Match             89.4%;  Score 584;  DB 1;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 7.2e-56;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:|||||||||||||||||||||||||| | |||||||||||||||||| ||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240
```

```
RESULT 6
NGF_PIG
ID   NGF_PIG        STANDARD;      PRT;   229 AA.
AC   Q29074;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Large white; TISSUE=Blood;
RX   MEDLINE=94313891; PubMed=8039422;
RA   Lahbib-Mansais Y., Mellink C., Yerle M., Gellin J.;
RT   "A new marker (NGFB) on pig chromosome 4, isolated by using a
RT   consensus sequence conserved among species.";
RL   Cytogenet. Cell Genet. 67:120-125(1994).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L31898; AAA21301.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER       1      1
FT   SIGNAL       <1      6       POTENTIAL.
FT   PROPEP        7    109       BY SIMILARITY.
FT   CHAIN       110    229       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    124    189       BY SIMILARITY.
FT   DISULFID    167    217       BY SIMILARITY.
```

```
FT   DISULFID    177    219       BY SIMILARITY.
FT   CARBOHYD     57     57       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    102    102       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    154    154       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   229 AA;  25275 MW;  FE8890771CBA3189 CRC64;

  Query Match             89.3%;  Score 583;  DB 1;  Length 229;
  Best Local Similarity   90.8%;  Pred. No. 8.7e-56;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
             ||:||||| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db     110 SSSHPVFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 169

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
             |||:|||||||||||||||||||||||||| | ||||||||||||||||||||| ||
Db     170 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAGRR 228


RESULT 7
NGF_BOVIN
ID   NGF_BOVIN      STANDARD;      PRT;   231 AA.
AC   P13600; O18969;
DT   01-JAN-1990 (Rel. 13, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RX   MEDLINE=97430845; PubMed=9284944;
RA   Elduque C., Laurent P., Hayes H., Rodellar C., Leveziel H.,
RA   Zaragoza P.;
RT   "Assignment of the beta-nerve growth factor (NGFB) to bovine
RT   chromosome 3 band q23 by in situ hybridization.";
RL   Cytogenet. Cell Genet. 77:306-307(1997).
RN   [2]
RP   SEQUENCE OF 107-231 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y09566; CAA70759.1; -.
DR   EMBL; M26809; AAA30666.1; -.
DR   PIR; A26312; A26312.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER       1      1
FT   SIGNAL       <1      8       POTENTIAL.
FT   PROPEP        9    111       BY SIMILARITY.
FT   CHAIN       112    231       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    126    191       BY SIMILARITY.
FT   DISULFID    169    219       BY SIMILARITY.
FT   DISULFID    179    221       BY SIMILARITY.
FT   CARBOHYD    156    156       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT    118    118       L -> F (IN REF. 2).
FT   CONFLICT    161    161       R -> K (IN REF. 2).
FT   CONFLICT    230    231       AP -> RA (IN REF. 2).
SQ   SEQUENCE   231 AA;  25437 MW;  01605099291A418C CRC64;

  Query Match             86.4%;  Score 564;  DB 1;  Length 231;
  Best Local Similarity   89.6%;  Pred. No. 9.9e-54;
  Matches  103;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
             ||:||| | |||||||:||||||||||||||||| || ||||||||||||||||||
Db     112 SSSHPVLHRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 171

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
             |||:|||||||:|||||||||||||||||| | ||||||||||||||||||||
Db     172 PNPVDSGCRGIDAKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRK 226


RESULT 8
NGF_CHICK
ID   NGF_CHICK      STANDARD;      PRT;   243 AA.
AC   P05200;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86300646; PubMed=3017695;
RA   Ebendahl T., Larhammar D., Persson H.;
RT   "Structure and expression of the chicken beta nerve growth factor
RT   gene.";
RL   EMBO J. 5:1483-1487(1986).
RN   [2]
RP   SEQUENCE OF 118-243 FROM N.A.
RX   MEDLINE=86248129; PubMed=3720959;
RA   Wion D., Perret C., Frechin N., Keller A., Behar G., Brachet P.,
RA   Auffray C.;
RT   "Molecular cloning of the avian beta-nerve growth factor gene:
RT   transcription in brain.";
RL   FEBS Lett. 203:82-86(1986).
RN   [3]
RP   SEQUENCE OF 121-243 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
RN   [4]
RP   SEQUENCE OF 181-222 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
```

```
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X04003; CAA27633.1; ALT_INIT.
DR   EMBL; X04067; CAA27703.1; -.
DR   EMBL; M26810; AAA48984.1; -.
DR   PIR; A24857; A24857.
DR   PIR; A26311; A26311.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23    125
FT   CHAIN       126    243       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27138 MW;  74C306CB2079DA07 CRC64;

  Query Match             83.6%;  Score 546;  DB 1;  Length 243;
  Best Local Similarity   84.6%;  Pred. No. 9.2e-52;
  Matches   99;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy       3 STHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRAS 62
           : ||| | |||||||||||:||||||||||||||||||| |||||||:||:|||||||||
Db     126 TAHPVLHRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDP 185

Qy      63 NPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
            || |||||||:|||||||||||||||||| : |||||||||||||||||||||: |
Db     186 RPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 9
NGF_XENLA
ID   NGF_XENLA      STANDARD;      PRT;   231 AA.
AC   P21617;
DT   01-MAY-1991 (Rel. 18, Created)
DT   15-DEC-1998 (Rel. 37, Last sequence update)
DT   15-DEC-1998 (Rel. 37, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91362944; PubMed=1888511;
RA   Carriero F., Campioni M., Cardinali B., Pierandrei-Amaldi P.;
RT   "Structure and expression of the nerve growth factor gene in Xenopus
RT   oocytes and embryos.";
RL   Mol. Reprod. Dev. 29:313-322(1991).
RN   [2]
RP   SEQUENCE OF 170-211 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X55716; CAA39249.1; ALT_INIT.
DR   PIR; S14481; S14481.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    114       POTENTIAL.
FT   CHAIN       115    231       NERVE GROWTH FACTOR.
FT   DISULFID    128    193       BY SIMILARITY.
FT   DISULFID    171    221       BY SIMILARITY.
FT   DISULFID    181    223       BY SIMILARITY.
FT   CARBOHYD     63     63       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    107    107       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    158    158       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   231 AA;  26416 MW;  72A04E7D00B858C5 CRC64;

  Query Match             81.5%;  Score 532;  DB 1;  Length 231;
  Best Local Similarity   84.2%;  Pred. No. 2.8e-50;
  Matches   96;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy       3 STHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRAS 62
           : ||| | ||:||||||||:|||:|| ||||||||||| |||||||||:|||||||||
Db     115 TVHPVLHKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDP 174

Qy      63 NPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
            || |||||||:|||||||||||||||||| : |||||||||||||||||||||
Db     175 KPVSSGCRGIDAKHWNSYCTTTHTFVKALTMEGKQAAWRFIRIDTACVCVLSRK 228


RESULT 10
NGF_DABRR
ID   NGF_DABRR      STANDARD;      PRT;   117 AA.
AC   P30894;
DT   01-JUL-1993 (Rel. 26, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Daboia russelli russelli (Russell's viper) (Vipera russelli russelli).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Viperinae; Daboia.
OX   NCBI_TaxID=31159;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=93120151; PubMed=1477101;
RA   Koyama J.-I., Inoue S., Ikeda K., Hayashi K.;
```

```
RT   "Purification and amino-acid sequence of a nerve growth factor from
RT   the venom of Vipera russelli russelli.";
RL   Biochim. Biophys. Acta 1160:287-292(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; S28161; S28161.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Glycoprotein; Growth factor.
FT   DISULFID     12     77       BY SIMILARITY.
FT   DISULFID     55    105       BY SIMILARITY.
FT   DISULFID     65    107       BY SIMILARITY.
FT   CARBOHYD     21     21       N-LINKED (GLCNAC. . .).
SQ   SEQUENCE   117 AA;  13283 MW;  A64559C5FEC11F66 CRC64;

  Query Match             72.7%;  Score 475;  DB 1;  Length 117;
  Best Local Similarity   73.2%;  Pred. No. 1.9e-44;
  Matches   82;  Conservative   17;  Mismatches   13;  Indels    0;  Gaps    0;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
           ||| : |||||||||||| :|||||::|  |||: :||:||:|::|||||||:  ||
Db       1 HPVHNQGEFSVCDSVSVWVANKTTATDMRGNVVTVMVDVNLNNNVYKQYFFETKCKNPNP 60

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           | |||||||:|||||||||| |||:||| :  ||:||||||:||||||:|||
Db      61 VPSGCRGIDAKHWNSYCTTTDTFVRALTMERNQASWRFIRINTACVCVISRK 112


RESULT 11
NGF_BUNMU
ID   NGF_BUNMU      STANDARD;      PRT;   243 AA.
AC   P34128;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Bungarus multicinctus (Many-banded krait).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Bungarinae; Bungarus.
OX   NCBI_TaxID=8616;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Venom gland;
RX   MEDLINE=93192074; PubMed=7916740;
RA   Danse J.M., Garnier J.M.;
RT   "Molecular cloning of a cDNA encoding a nerve growth factor precursor
RT   from the krait, Bungarus multicinctus.";
RL   Growth Factors 8:77-86(1993).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S56212; AAB25729.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    125
FT   CHAIN       126    243       NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27514 MW;  E33F64B142179A08 CRC64;

  Query Match             72.1%;  Score 471;  DB 1;  Length 243;
  Best Local Similarity   72.2%;  Pred. No. 1.1e-43;
  Matches   83;  Conservative   14;  Mismatches   18;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           :  ||| : || |||||:|||| :|| ||||||  |||: :||:|| |::|||||||||
Db     125 NENHPVHNQGEHSVCDSISVWVTNKTKATDIKGNTVTVMVDVNLNNEVYKQYFFETKCRN 184

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
              ||| |||||||:|||||||||| |||||||  :  :|:|||||||||||||:|||
Db     185 PNPVPSGCRGIDSRHWNSYCTTTDTFVKALTMEGNRASWRFIRIDTACVCVISRK 239


RESULT 12
NGF_NAJNA
ID   NGF_NAJNA      STANDARD;      PRT;   116 AA.
AC   P01140;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-MAY-1991 (Rel. 18, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Naja naja (Indian cobra).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Elapinae; Naja.
OX   NCBI_TaxID=35670;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=91138755; PubMed=1995338;
RA   Inoue S., Oda T., Koyama J., Ikeda K., Hayashi K.;
RT   "Amino acid sequences of nerve growth factors derived from cobra
RT   venoms.";
RL   FEBS Lett. 279:38-40(1991).
RN   [2]
RP   PRELIMINARY SEQUENCE.
RC   TISSUE=Venom;
RX   MEDLINE=76114772; PubMed=1247508;
RA   Hogue-Angeletti R.A., Frazier W.A., Jacobs J.W., Niall H.D.,
RA   Bradshaw R.A.;
RT   "Purification, characterization, and partial amino acid sequence of
RT   nerve growth factor from cobra venom.";
RL   Biochemistry 15:26-34(1976).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; A01401; NGNJXI.
DR   PIR; S13927; S13927.
```

```
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   DISULFID     14     78       BY SIMILARITY.
FT   DISULFID     56    106       BY SIMILARITY.
FT   DISULFID     66    108       BY SIMILARITY.
SQ   SEQUENCE   116 AA;  13022 MW;  DAB346B1093E7E06 CRC64;

  Query Match             66.4%;  Score 433.5;  DB 1;  Length 116;
  Best Local Similarity   68.8%;  Pred. No. 5.6e-40;
  Matches   77;  Conservative   15;  Mismatches   19;  Indels    1;  Gaps    1;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
             ||| ::|| ||||||| ||  |||||||||  |||:  ||::| |:::||||||:  ||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKEYFFETKCKNPNP 61

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
             |||||||| ||||||| | ||:|||| :  ||:|||||||||||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 113


RESULT 13
NGF_NAJAT
ID   NGF_NAJAT      STANDARD;      PRT;   116 AA.
AC   P21377;
DT   01-MAY-1991 (Rel. 18, Created)
DT   01-MAY-1991 (Rel. 18, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Nerve growth factor (NGF).
OS   Naja atra (Chinese cobra), and
OS   Naja naja kaouthia (Monocled cobra) (Naja naja siamensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Elapidae; Elapinae; Naja.
OX   NCBI_TaxID=8656, 8649;
RN   [1]
RP   SEQUENCE.
RC   SPECIES=N.n.atra; TISSUE=Venom;
RX   MEDLINE=90147847; PubMed=2619756;
RA   Oda T., Ohta M., Inoue S., Ikeda K., Furukawa S., Hayashi K.;
RT   "Amino acid sequence of nerve growth factor purified from the venom
RT   of the Formosan cobra Naja naja atra.";
RL   Biochem. Int. 19:909-917(1989).
RN   [2]
RP   SEQUENCE.
RC   SPECIES=N.n.kaouthia; TISSUE=Venom;
RX   MEDLINE=91138755; PubMed=1995338;
RA   Inoue S., Oda T., Koyama J., Ikeda K., Hayashi K.;
RT   "Amino acid sequences of nerve growth factors derived from cobra
RT   venoms.";
RL   FEBS Lett. 279:38-40(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; S13965; S13965.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   DISULFID     14     78       BY SIMILARITY.
FT   DISULFID     56    106       BY SIMILARITY.
FT   DISULFID     66    108       BY SIMILARITY.
SQ   SEQUENCE   116 AA;  13064 MW;  DAB35421093F3B06 CRC64;

  Query Match             65.8%;  Score 429.5;  DB 1;  Length 116;
  Best Local Similarity   67.9%;  Pred. No. 1.5e-39;
  Matches   76;  Conservative   16;  Mismatches   19;  Indels    1;  Gaps    1;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
             ||| ::|| ||||||| ||  |||||||||  |||:  ||::| |:::||||||:  ||
Db       3 HPVHNLGEHSVCDSVSAWV-TKTTATDIKGNTVTVMENVNLDNKVYKEYFFETKCKNPNP 61

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
             |||||||| ||||||| | ||:|||| :  ||:|||||||:|||||:::|
Db      62 EPSGCRGIDSSHWNSYCTETDTFIKALTMEGNQASWRFIRIETACVCVITKK 113


RESULT 14
NGF_XIPMA
ID   NGF_XIPMA      STANDARD;      PRT;   194 AA.
AC   P34129;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xiphophorus maculatus (Southern platyfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92333301; PubMed=1629719;
RA   Gotz R., Raulf F., Schartl M.;
RT   "Brain-derived neurotrophic factor is more highly conserved in
RT   structure and function than nerve growth factor during vertebrate
RT   evolution.";
RL   J. Neurochem. 59:432-442(1992).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS AS WELL AS BASAL FOREBRAIN CHOLINERGIC
CC       NEURONS IN THE BRAIN.
CC   -!- SUBUNIT: HOMODIMER.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X59941; CAA42566.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; FALSE_NEG.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     30       POTENTIAL.
FT   PROPEP      31     79
```

```
FT   CHAIN        80    194       NERVE GROWTH FACTOR.
FT   DISULFID     90    155       BY SIMILARITY.
FT   DISULFID    133    183       BY SIMILARITY.
FT   DISULFID    143    185       BY SIMILARITY.
SQ   SEQUENCE   194 AA;  21596 MW;  0369E0F4A51147AE CRC64;

  Query Match             59.7%;  Score 390;  DB 1;  Length 194;
  Best Local Similarity   66.1%;  Pred. No. 4.9e-35;
  Matches   72;  Conservative   13;  Mismatches   24;  Indels    0;  Gaps    0;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | | :|||:|||||||:|| |||| ||||||| |||||   :|||||| | :      |
Db      83 HRGVYSVCESVSVWVGNKTKATDISGKEVTVLPYVNINNVKKKQYFFETTCHSPPSGGSR 142

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKA 117
           | |||::||||:|| :||||:|||: | | ||| |||: |||||||||:
Db     143 CLGIDARHWNSHCTNSHTFVRALTSSENQVAWRLIRINVACVCVLSRKS 191


RESULT 15
NT7_CYPCA
ID   NT7_CYPCA      STANDARD;      PRT;   140 AA.
AC   O93474;
DT   16-OCT-2001 (Rel. 40, Created)
DT   16-OCT-2001 (Rel. 40, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-7 precursor (NT-7) (Fragment).
GN   NTF7 OR NT7 OR NNT.
OS   Cyprinus carpio (Common carp).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Cyprinus.
OX   NCBI_TaxID=7962;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   PubMed=9618228;
RA   Lai K.-O., Fu W.-Y., Ip F.C.F., Ip N:Y.;
RT   "Cloning and expression of a novel neurotrophin, NT-7, from carp.";
RL   Mol. Cell. Neurosci. 11:64-76(1998).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U94949; AAC25632.1; -.
DR   HSSP; P01139; 1SGF.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   NON_TER       1      1
FT   PROPEP       <1      7       BY SIMILARITY.
FT   CHAIN         8    140       NEUROTROPHIN-7.
FT   DISULFID     21    101       BY SIMILARITY.
FT   DISULFID     64    129       BY SIMILARITY.
FT   DISULFID     89    131       BY SIMILARITY.
FT   VARIANT      70     70       I -> V.
FT   VARIANT      95     95       E -> K.
SQ   SEQUENCE   140 AA;  15855 MW;  3F5E0BCE2601B0FC CRC64;

  Query Match             58.1%;  Score 379.5;  DB 1;  Length 140;
  Best Local Similarity   56.3%;  Pred. No. 4.7e-34;
  Matches   71;  Conservative   14;  Mismatches   26;  Indels   15;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPV--- 65
           | ||:|||||   |||: | |||::| |||||  | ||| | :| |:|| || | |:
Db      14 HRGEYSVCDSEEHWVGNLTQATDLRGNEVTVLPHVRINNVVKKQMFYETTCRVSKPIGAP 73

Qy      66 ------------ESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVL 113
                        | |||||::|||||||  ||||:|||: : | |||||||: ||||||
Db      74 KPGQGVSGVKAGTSSCRGIDNEHWNSYCTNVHTFVRALTSYKNQIAWRFIRINAACVCVL 133

Qy     114 SRKATR 119
           || : |
Db     134 SRNSWR 139


Search completed: December  2, 2002, 15:12:43
Job time : 5.96483 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 18.7245 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	584	89.4	241	4	Q9P2Q8	Q9p2q8 homo sapien
2	584	89.4	241	4	Q9UKL8	Q9uk18 homo sapien
3	584	89.4	241	6	Q9N2F1	Q9n2f1 pan troglod
4	584	89.4	241	6	Q9N2F0	Q9n2f0 gorilla gor
5	584	89.4	241	6	Q9N2E9	Q9n2e9 pongo pygma
6	577	88.4	294	11	Q91XB4	Q91xb4 mus musculu
7	576	88.2	241	4	Q96P60	Q96p60 homo sapien
8	522	79.9	217	6	Q9N183	Q9n183 macaca fusc
9	478	73.2	241	13	Q90W38	Q90w38 bothrops ja
10	471	72.1	241	13	Q9DEZ9	Q9dez9 crotalus du
11	424	64.9	87	6	Q9TTC3	Q9ttc3 cervus elap
12	416	63.7	87	4	Q9P2Z4	Q9p2z4 homo sapien
13	347.5	53.2	286	13	Q91988	Q91988 xiphophorus
14	335.5	51.4	241	6	Q9N182	Q9n182 macaca fusc
15	325.5	49.8	153	11	Q9CYL3	Q9cyl3 mus musculu
16	325.5	49.8	247	6	O97759	O97759 ailurus ful
17	325.5	49.8	249	11	Q8VHH4	Q8vhh4 mus musculu
18	320.5	49.1	246	13	Q8QG76	Q8qg76 japalura sp
19	319.5	48.9	270	13	Q9YH42	Q9yh42 brachydanio
20	318.5	48.8	177	13	Q9I8L2	Q9i812 poephila gu
21	318.5	48.8	246	13	Q8QG74	Q8qg74 cyclophiops
22	314.5	48.2	246	13	Q8QG75	Q8qg75 phrynocepha
23	305	46.7	247	13	Q8QG77	Q8qg77 tylototrito
24	296.5	45.4	101	6	Q9TT22	Q9tt22 macaca fusc
25	270	41.3	324	13	Q9XY95	Q9xy95 lampetra fl
26	262.5	40.2	186	12	Q9J5D9	Q9j5d9 fowlpox vir
27	227	34.8	85	6	O02790	O02790 macropus fu
28	221	33.8	85	6	O13114	O13114 isoodon mac
29	221	33.8	85	6	O13122	O13122 tarsipes ro
30	221	33.8	85	6	O02795	O02795 ornithorhyn
31	221	33.8	85	6	O02798	O02798 petaurus br
32	221	33.8	85	6	O13104	O13104 cercartetus
33	221	33.8	85	6	O02792	O02792 notoryctes
34	221	33.8	85	6	O13105	O13105 dasyuroides
35	221	33.8	85	6	O02801	O02801 tachyglossu
36	220	33.7	85	6	O02803	O02803 trichosurus
37	197	30.2	42	6	O02794	O02794 ornithorhyn
38	195	29.9	42	6	O02800	O02800 tachyglossu
39	194	29.7	42	6	O02802	O02802 trichosurus
40	161	24.7	185	11	Q99NV9	Q99nv9 pedetes cap
41	160	24.5	184	6	Q9BFJ5	Q9bfj5 tupaia mino
42	160	24.5	185	6	Q9BFK6	Q9bfk6 talpa altai
43	160	24.5	185	6	Q9BFK5	Q9bfk5 condylura c
44	160	24.5	186	6	Q9BFL3	Q9bfl3 choloepus h
45	160	24.5	186	6	Q9BFL2	Q9bfl2 choloepus d

ALIGNMENTS

RESULT 1
Q9P2Q8
ID Q9P2Q8 PRELIMINARY; PRT; 241 AA.
AC Q9P2Q8;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Beta-nerve growth factor (Fragment).
GN BETA-NGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RA Kitano T., Kobayakawa H., Saitou N.;
RT "Silver Project.";
RL Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AB037517; BAA90437.1; -.
DR HSSP; P01139; 1BET.
DR InterPro; IPR002072; NGF.
DR Pfam; PF00243; NGF; 1.
DR PRINTS; PR00268; NGF.
DR ProDom; PD002052; NGF; 1.
DR SMART; SM00140; NGF; 1.
DR PROSITE; PS00248; NGF_1; 1.
DR PROSITE; PS50270; NGF_2; 1.
FT NON_TER 241 241
SQ SEQUENCE 241 AA; 26998 MW; D5531ED825D96C14 CRC64;

Query Match 89.4%; Score 584; DB 4; Length 241;
Best Local Similarity 89.9%; Pred. No. 1.1e-58;
Matches 107; Conservative 4; Mismatches 8; Indels 0; Gaps 0;

```
Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
```

```
          |||:|||||||||||||||||||||||||| | |||||||||||||||||||| ||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 2
Q9UKL8
ID   Q9UKL8      PRELIMINARY;      PRT;   241 AA.
AC   Q9UKL8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor B.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99256269; PubMed=10322959;
RA   Tong Y., Wang H., Chen W.;
RT   "Cloning and sequencing of the gene for premature beta nerve growth
RT   factor.";
RL   Chung Kuo Ying Yung Sheng Li Hsueh Tsa Chih 13:316-318(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Tong Y., Wang H.;
RL   Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF150960; AAD55975.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26959 MW;  619DFC65EB3BD671 CRC64;

  Query Match             89.4%;  Score 584;  DB 4;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 1.1e-58;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 3
Q9N2F1
ID   Q9N2F1      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CHIMP-220;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037518; BAA90438.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26868 MW;  B39FAA8912C00A0B CRC64;

  Query Match             89.4%;  Score 584;  DB 6;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 1.1e-58;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 4
Q9N2F0
ID   Q9N2F0      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Gorilla gorilla (gorilla).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Gorilla.
OX   NCBI_TaxID=9593;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=GORILLA-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037519; BAA90439.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26915 MW;  6F54D163C384BB34 CRC64;

  Query Match             89.4%;  Score 584;  DB 6;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 1.1e-58;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db    122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db    182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 5
Q9N2E9
ID   Q9N2E9      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2E9;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
```

```
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pongo pygmaeus (Orangutan).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pongo.
OX   NCBI_TaxID=9600;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=ORAN-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037520; BAA90440.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26876 MW;  DFC168E7E4E01F15 CRC64;

  Query Match             89.4%;  Score 584;  DB 6;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 1.1e-58;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
             |||:|||||||||||||||||||||||| | |||||||||||||||||||| ||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 6
Q91XB4
ID   Q91XB4      PRELIMINARY;      PRT;   294 AA.
AC   Q91XB4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Similar to nerve growth factor, beta.
GN   NGFB.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=SALIVARY GLAND;
RA   Strausberg R.;
RL   Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; BC011123; AAH11123.1; -.
DR   MGD; MGI:97321; Ngfb.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   294 AA;  32326 MW;  9EE7402DAC899229 CRC64;

  Query Match             88.4%;  Score 577;  DB 11;  Length 294;
  Best Local Similarity   100.0%;  Pred. No. 9e-58;
  Matches  107;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     188 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 247

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTA 108
           |||||||||||||||||||||||||||||||||||||||||||||||||
Db     248 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTA 294


RESULT 7
Q96P60
ID   Q96P60      PRELIMINARY;      PRT;   241 AA.
AC   Q96P60;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor beta.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhang Y., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF411526; AAL05874.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26964 MW;  745216485C21E558 CRC64;

  Query Match             88.2%;  Score 576;  DB 4;  Length 241;
  Best Local Similarity   88.2%;  Pred. No. 9.2e-58;
  Matches  105;  Conservative    6;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || ||:|||||:|||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVSINNSVFKQYFFETKCRD 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
             |||:|||||||||||||||||||||||| | |||||||||||||:||||| ||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACMCVLSRKAVRR 240


RESULT 8
Q9N183
ID   Q9N183      PRELIMINARY;      PRT;   217 AA.
AC   Q9N183;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta nerve growth factor (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF222682; AAF33790.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
```

```
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     217    217
SQ   SEQUENCE   217 AA;  24240 MW;  36A5A2D1DFCD8D5C CRC64;

  Query Match             79.9%;  Score 522;  DB 6;  Length 217;
  Best Local Similarity   89.6%;  Pred. No. 1.2e-51;
  Matches   95;  Conservative    4;  Mismatches    7;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db     112 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 171

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDT 107
           |||:|||||||||||||||||||||||| | ||||||||||||
Db     172 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDT 217


RESULT 9
Q90W38
ID   Q90W38      PRELIMINARY;      PRT;   241 AA.
AC   Q90W38;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Putative neurotrophic growth factor.
GN   NGF.
OS   Bothrops jararacussu (Jararacussu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Bothrops.
OX   NCBI_TaxID=8726;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Kashima S., Pereira J.O., Astolfi Filho S., Soares A.M.,
RA   Cintra A.C.O., Giglio J.R., Franca S.C.;
RT   "Molecular cloning and cDNA sequence of a nerve growth factor
RT   precursor from Bothrops jararacussu venomous gland.";
RL   Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY007318; AAG12169.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27161 MW;  AC57F724A6531A8F CRC64;

  Query Match             73.2%;  Score 478;  DB 13;  Length 241;
  Best Local Similarity   74.1%;  Pred. No. 1.5e-46;
  Matches   83;  Conservative   17;  Mismatches   12;  Indels    0;  Gaps    0;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
           ||| : ||:||||||:||| :|||||||:|  |||: :|||||:|::|||||||||  ||
Db     125 HPVHNRGEYSVCDSVNVWVANKTTATDIRGNVVTVMVDVNINNNVYKQYFFETKCRNPNP 184

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           | :||||||::|||||||||:||||||| :  ||:|||||||||||||:|||
Db     185 VPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDTACVCVISRK 236


RESULT 10
Q9DEZ9
ID   Q9DEZ9      PRELIMINARY;      PRT;   241 AA.
AC   Q9DEZ9;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Nerve growth factor.
OS   Crotalus durissus terrificus (South American rattlesnake).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Crotalus.
OX   NCBI_TaxID=8732;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Hayashi M.A.F., Radis-Baptista G., Yamane T., Camargo A.C.M.;
RT   "Cloning and sequence of a cDNA coding for a rattlesnake (Crotalus
RT   durissus terrificus) nerve growth factor.";
RL   Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF306533; AAG30924.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27118 MW;  4A261F42C5D6FF3F CRC64;

  Query Match             72.1%;  Score 471;  DB 13;  Length 241;
  Best Local Similarity   73.2%;  Pred. No. 9.4e-46;
  Matches   82;  Conservative   17;  Mismatches   13;  Indels    0;  Gaps    0;

Qy       5 HPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNP 64
           |||   ||:||||||:||| :|||||||:|  |||: :|||||:|::|||||||||  ||
Db     125 HPVHKRGEYSVCDSVNVWVANKTTATDIRGNLVTVMVDVNINNNVYKQYFFETKCRNPNP 184

Qy      65 VESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRK 116
           | :||||||::|||||||||:||||||| :  ||:|||||||||||||:|||
Db     185 VPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQASWRFIRIDSACVCVISRK 236


RESULT 11
Q9TTC3
ID   Q9TTC3      PRELIMINARY;      PRT;    87 AA.
AC   Q9TTC3;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Beta nerve growth factor (Fragment).
GN   NGF.
OS   Cervus elaphus scotticus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea;
OC   Cervidae; Cervinae; Cervus.
OX   NCBI_TaxID=109627;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Robertson T.M., Stanton J.L., Clark D.E., Sheard P.W., Harris A.J.,
RA   Suttie J.M.;
RT   "NGF expression in Antler.";
RL   Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF145043; AAF17235.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      87     87
SQ   SEQUENCE   87 AA;  9876 MW;  17EE06E49AF7A0A4 CRC64;

  Query Match             64.9%;  Score 424;  DB 6;  Length 87;
  Best Local Similarity   88.5%;  Pred. No. 6.5e-41;
  Matches   77;  Conservative    4;  Mismatches    6;  Indels    0;  Gaps    0;
```

```
Qy      18 SVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESGCRGIDSKHW 77
           ||||||||||||||||||| || |||||||||:|||||||||  |||: ||||||:|||
Db       1 SVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDGGCRGIDAKHW 60

Qy      78 NSYCTTTHTFVKALTTDEKQAAWRFIR 104
           |||||||||||||| |:|||||||||
Db      61 NSYCTTTHTFVKALTMDDKQAAWRFIR 87


RESULT 12
Q9P2Z4
ID   Q9P2Z4      PRELIMINARY;      PRT;    87 AA.
AC   Q9P2Z4;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Truncated beta nerve growth factor (Fragment).
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95236507; PubMed=7720122;
RA   Li Y., Huang B., Cai L.;
RT   "Amplification, cloning and sequencing of beta nerve growth factor
RT   gene in the Chinese population.";
RL   Chung-Kuo I Hsueh Ko Hsueh Yuan Hsueh Pao 16:334-338(1994).
DR   EMBL; S76884; AAB34114.2; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   87 AA;  9729 MW;  45E9E27388FDEE27 CRC64;

  Query Match             63.7%;  Score 416;  DB 4;  Length 87;
  Best Local Similarity   85.1%;  Pred. No. 5.3e-40;
  Matches   74;  Conservative    4;  Mismatches    9;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||:||||||||||||||||||||||| || ||||||||| |||||||||
Db       1 SSSHPIFHRGEFAVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFEQYFFETKCRD 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFV 88
           |||:|||||  |||||||||||  || |
Db      61 PNPVDSGCRGTDSKHWNSYCTTNHTLV 87


RESULT 13
Q91988
ID   Q91988      PRELIMINARY;      PRT;   286 AA.
AC   Q91988;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Neurotrophin-6 precursor.
OS   Xiphophorus maculatus (Southern platyfish), and
OS   Xiphophorus helleri.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083, 8084;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95059452; PubMed=7969471;
RA   Gotz R., Koster R., Winkler C., Raulf F., Lottspeich F., Schartl M.,
RA   Thoenen H.;
RT   "Neurotrophin-6 is a new member of the nerve growth factor family.";
RL   Nature 372:266-269(1994).
DR   EMBL; L36942; AAA61923.1; -.
DR   EMBL; L36325; AAA61922.1; -.
DR   EMBL; L36326; AAA61921.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Signal.
FT   SIGNAL        1    142
FT   CHAIN       143    286       NEUROTROPHIN-6.
SQ   SEQUENCE   286 AA;  31424 MW;  5607DBA66792E12D CRC64;

  Query Match             53.2%;  Score 347.5;  DB 13;  Length 286;
  Best Local Similarity   50.0%;  Pred. No. 1.6e-31;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels   23;  Gaps    2;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA------- 61
           | ||:|||||:: || :|| ||||: | |||||: | :|| | :| |:|| ||:
Db     150 HRGEYSVCDSINTWV-NKTRATDMSGNEVTVLSHVTVNNKVKKQLFYETTCRSPTHRSSG 208

Qy      62 --------------SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRID 106
                         |    ||||||||::|||:|| |  :| |||  ::| |||||||:
Db     209 IVIGGRSGGRGGKQGSKTGNSGCRGIDSRYWNSHCTNTDIYVSALTVFKEQTAWRFIRIN 268

Qy     107 TACVCVLSRKATRR 120
           |||||||| :  |
Db     269 AACVCVLSRNSWSR 282


RESULT 14
Q9N182
ID   Q9N182      PRELIMINARY;      PRT;   241 AA.
AC   Q9N182;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Neurotrophin-3 (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Hashimoto T., Okuno H., Tokuyama W., Li Y.X., Miyashita Y.;
RT   "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT   their receptor messenger RNAs in monkey rhinal cortex.";
RL   Neuroscience 0:0-0(2000).
DR   EMBL; AF222683; AAF33791.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
```

```
FT   NON_TER       1      1
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  27803 MW;  AB95E457C7B07113 CRC64;

  Query Match             51.4%;  Score 335.5;  DB 6;  Length 241;
  Best Local Similarity   58.0%;  Pred. No. 3e-30;
  Matches   58;  Conservative   20;  Mismatches   21;  Indels    1;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db     142 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 201

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDT 107
           ||||| ||||| | |: |:|:|:::  |   ||:|||||
Db     202 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDT 241


RESULT 15
Q9CYL3
ID   Q9CYL3      PRELIMINARY;      PRT;   153 AA.
AC   Q9CYL3;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=EMBRYO;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK017559; BAB30805.1; -.
DR   HSSP; P23560; 1B8M.
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   153 AA;  17519 MW;  CA8EB8944CEE5B37 CRC64;

  Query Match             49.8%;  Score 325.5;  DB 11;  Length 153;
  Best Local Similarity   54.5%;  Pred. No. 2.4e-29;
  Matches   61;  Conservative   16;  Mismatches   32;  Indels    3;  Gaps    2;

Qy      11 GEFSVCDSVSVWV--GDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           || |||||:| ||   || || |: |  |||| :| ::    :|||:||||      : |
Db      42 GELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEG 101

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 119
           ||||| :|||| | || ::|:||| | :|:  ||||||||:||| |: |  |
Db     102 CRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 153


Search completed: December  2, 2002, 15:12:01
Job time : 18.7245 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 8.36928 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	653	100.0	121	4	US-09-675-503-3	Sequence 3, Appli
2	646	98.9	120	1	US-08-440-049-1	Sequence 1, Appli
3	646	98.9	120	2	US-08-441-513A-1	Sequence 1, Appli
4	646	98.9	120	3	US-08-970-865-3	Sequence 3, Appli
5	646	98.9	120	4	US-09-363-573-3	Sequence 3, Appli
6	646	98.9	120	5	PCT-US95-06918-1	Sequence 1, Appli
7	618	94.6	120	1	US-07-979-630-1	Sequence 1, Appli
8	618	94.6	120	5	PCT-US93-11292-1	Sequence 1, Appli
9	594	91.0	121	4	US-09-675-503-2	Sequence 2, Appli
10	587	89.9	120	3	US-08-970-865-2	Sequence 2, Appli
11	587	89.9	120	4	US-09-363-573-2	Sequence 2, Appli
12	584	89.4	120	1	US-08-440-049-3	Sequence 3, Appli
13	584	89.4	120	2	US-08-441-513A-3	Sequence 3, Appli
14	584	89.4	120	3	US-08-581-662-31	Sequence 31, Appl
15	584	89.4	120	4	US-08-845-541B-1	Sequence 1, Appli
16	584	89.4	120	4	US-09-066-065A-1	Sequence 1, Appli
17	584	89.4	120	4	US-09-447-356-1	Sequence 1, Appli
18	584	89.4	120	4	US-09-664-295-31	Sequence 31, Appl
19	584	89.4	120	5	PCT-US95-06918-3	Sequence 3, Appli
20	584	89.4	241	1	US-08-266-080B-4	Sequence 4, Appli
21	584	89.4	241	1	US-08-451-947-5	Sequence 5, Appli
22	584	89.4	241	2	US-08-424-826A-5	Sequence 5, Appli
23	584	89.4	241	2	US-08-595-043A-75	Sequence 75, Appl
24	584	89.4	241	3	US-08-970-865-1	Sequence 1, Appli
25	584	89.4	241	3	US-08-928-694-5	Sequence 5, Appli
26	584	89.4	241	4	US-09-363-573-1	Sequence 1, Appli
27	584	89.4	241	4	US-09-447-356-3	Sequence 3, Appli
28	584	89.4	241	5	PCT-US91-06950-5	Sequence 5, Appli
29	584	89.4	241	5	PCT-US95-05423-4	Sequence 4, Appli
30	584	89.4	242	4	US-09-675-503-1	Sequence 1, Appli
31	579	88.7	119	3	US-08-753-642-2	Sequence 2, Appli
32	579	88.7	153	4	US-09-675-922-2	Sequence 2, Appli
33	579	88.7	157	4	US-09-675-922-4	Sequence 4, Appli
34	579	88.7	163	4	US-09-675-922-6	Sequence 6, Appli
35	579	88.7	167	4	US-09-675-922-8	Sequence 8, Appli
36	570	87.3	120	4	US-08-845-541B-3	Sequence 3, Appli
37	570	87.3	120	4	US-09-066-065A-3	Sequence 3, Appli
38	567	86.8	120	4	US-08-845-541B-4	Sequence 4, Appli
39	567	86.8	120	4	US-09-066-065A-4	Sequence 4, Appli
40	562	86.1	120	4	US-08-845-541B-12	Sequence 12, Appl
41	562	86.1	120	4	US-09-066-065A-12	Sequence 12, Appl
42	561	85.9	120	4	US-08-845-541B-17	Sequence 17, Appl
43	561	85.9	120	4	US-08-845-541B-20	Sequence 20, Appl
44	561	85.9	120	4	US-09-066-065A-17	Sequence 17, Appl
45	561	85.9	120	4	US-09-066-065A-20	Sequence 20, Appl

ALIGNMENTS

RESULT 1
US-09-675-503-3
; Sequence 3, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: ISOLATION OF NEUROTROPHINS FROM A
; TITLE OF INVENTION: MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
; TITLE OF INVENTION: USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
; FILE REFERENCE: GENENT.037C2
; CURRENT APPLICATION NUMBER: US/09/675,503
; CURRENT FILING DATE: 2000-09-29
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
; LENGTH: 121
; TYPE: PRT
; ORGANISM: mouse
US-09-675-503-3

Query Match 100.0%; Score 653; DB 4; Length 121;
Best Local Similarity 100.0%; Pred. No. 2e-73;
Matches 121; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60

Qy      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120

Qy     121 G 121
           |
Db     121 G 121
```

RESULT 2
US-08-440-049-1
; Sequence 1, Application US/08440049

```
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-1

  Query Match             98.9%;  Score 646;  DB 1;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-72;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 3
US-08-441-513A-1
; Sequence 1, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-1

  Query Match             98.9%;  Score 646;  DB 2;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-72;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 4
US-08-970-865-3
; Sequence 3, Application US/08970865
; Patent No. 6005081
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
```

```
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-3

  Query Match             98.9%;  Score 646;  DB 3;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-72;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 5
US-09-363-573-3
; Sequence 3, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-3

  Query Match             98.9%;  Score 646;  DB 4;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-72;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 6
PCT-US95-06918-1
; Sequence 1, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-1

  Query Match             98.9%;  Score 646;  DB 5;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-72;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 120


RESULT 7
US-07-979-630-1
; Sequence 1, Application US/07979630
; Patent No. 5488099
;  GENERAL INFORMATION:
;    APPLICANT:  Persson, et al.
;    TITLE OF INVENTION:  Multifunctional Neurotrophic Factors
;    NUMBER OF SEQUENCES:  3
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Regeneron Pharmaceuticals, Inc.
;      STREET:  777 Old Saw Mill River Road
;      CITY:  Tarrytown
```

```
;       STATE:  New York
;       COUNTRY:  U.S.A.
;       ZIP:  10591
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.25
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/07/979,630
;       FILING DATE:  20-NOV-1992
;       CLASSIFICATION:  530
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US 07/847,369
;       FILING DATE:  06-MAR-1992
;       NAME:
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Kempler Ph.D., Gail M.
;       REGISTRATION NUMBER:  32,143
;       REFERENCE/DOCKET NUMBER:  REG 41
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  914-347-7000
;       TELEFAX:  914-347-2113
;   INFORMATION FOR SEQ ID NO:  1:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  120 amino acids
;       TYPE:  amino acid
;       STRANDEDNESS:  unknown
;       TOPOLOGY:  unknown
;     MOLECULE TYPE:  protein
US-07-979-630-1

  Query Match             94.6%;  Score 618;  DB 1;  Length 120;
  Best Local Similarity   94.2%;  Pred. No. 4.4e-69;
  Matches  113;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||| |||||||||:||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||::|||||||||||||:||||||||||||||||||||| |||
Db      61 PNPVESGCRGIDSKHWSNYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARRG 120


RESULT 8
PCT-US93-11292-1
; Sequence 1, Application PC/TUS9311292
;  GENERAL INFORMATION:
;     APPLICANT:  Persson, et al.
;     TITLE OF INVENTION:  Multifunctional Neurotrophic Factors
;     NUMBER OF SEQUENCES:  3
;     CORRESPONDENCE ADDRESS:
;       ADDRESSEE:  Regeneron Pharmaceuticals, Inc.
;       STREET:  777 Old Saw Mill River Road
;       CITY:  Tarrytown
;       STATE:  New York
;       COUNTRY:  U.S.A.
;       ZIP:  10591
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  PatentIn Release #1.0, Version #1.25
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  PCT/US93/11292
;       FILING DATE:  19-NOV-1993
;       CLASSIFICATION:
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US 07/847,369
;       FILING DATE:  06-MAR-1992
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Kempler Ph.D., Gail M.
;       REGISTRATION NUMBER:  32,143
;       REFERENCE/DOCKET NUMBER:  REG 41
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  914-347-7000
;       TELEFAX:  914-347-2113
;   INFORMATION FOR SEQ ID NO:  1:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  120 amino acids
;       TYPE:  amino acid
;       STRANDEDNESS:  unknown
;       TOPOLOGY:  unknown
;     MOLECULE TYPE:  protein
PCT-US93-11292-1

  Query Match             94.6%;  Score 618;  DB 5;  Length 120;
  Best Local Similarity   94.2%;  Pred. No. 4.4e-69;
  Matches  113;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           |||||||||||||||||||||||||||||||||||||||| |||||||||:||||||||||
Db       1 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRA 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRRG 121
           ||||||||||||||::|||||||||||||:||||||||||||||||||||| |||
Db      61 PNPVESGCRGIDSKHWSNYCTTTHTFVKALTTDDKQAAWRFIRIDTACVCVLSRKAARRG 120


RESULT 9
US-09-675-503-2
; Sequence 2, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
;  APPLICANT:  Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION:  ISOLATION OF NEUROTROPHINS FROM A
;  TITLE OF INVENTION:  MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
;  TITLE OF INVENTION:  USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
;  FILE REFERENCE:  GENENT.037C2
;  CURRENT APPLICATION NUMBER: US/09/675,503
;  CURRENT FILING DATE:  2000-09-29
;  PRIOR APPLICATION NUMBER:  60/030838
;  PRIOR FILING DATE:  1996-11-15
;  PRIOR APPLICATION NUMBER:  60/047855
;  PRIOR FILING DATE:  1997-05-29
;  PRIOR APPLICATION NUMBER:  08/970865
;  PRIOR FILING DATE:  1997-11-14
;  PRIOR APPLICATION NUMBER:  09/363573
;  PRIOR FILING DATE:  1999-07-29
;  NUMBER OF SEQ ID NOS:  6
;  SOFTWARE:  FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-09-675-503-2

  Query Match             91.0%;  Score 594;  DB 4;  Length 121;
  Best Local Similarity   90.8%;  Pred. No. 4.2e-66;
  Matches  109;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60
           |||:||:|| |||||||||||||||||||||||| || ||||||||||||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60

Qy      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:|||||||||||||||||||||||| | |||||||||||||||||| ||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120


RESULT 10
US-08-970-865-2
; Sequence 2, Application US/08970865
```

```
; Patent No. 6005081
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-2

  Query Match             89.9%;  Score 587;  DB 3;  Length 120;
  Best Local Similarity   90.8%;  Pred. No. 3e-65;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || ||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:|||||||||||||||||||||||| | ||||||||||||||||||||| ||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


RESULT 11
US-09-363-573-2
; Sequence 2, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-2

  Query Match             89.9%;  Score 587;  DB 4;  Length 120;
  Best Local Similarity   90.8%;  Pred. No. 3e-65;
  Matches  108;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || ||||||||||||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRD 60

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:|||||||||||||||||||||||| | ||||||||||||||||||||| ||
Db      61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


RESULT 12
US-08-440-049-3
; Sequence 3, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
```

```
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-3

  Query Match             89.4%;  Score 584;  DB 1;  Length 120;
  Best Local Similarity   89.9%;  Pred. No. 7.2e-65;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
          |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


RESULT 13
US-08-441-513A-3
; Sequence 3, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-3

  Query Match             89.4%;  Score 584;  DB 2;  Length 120;
  Best Local Similarity   89.9%;  Pred. No. 7.2e-65;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
          |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


RESULT 14
US-08-581-662-31
; Sequence 31, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 31
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-31

  Query Match             89.4%;  Score 584;  DB 3;  Length 120;
  Best Local Similarity   89.9%;  Pred. No. 7.2e-65;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
          |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


RESULT 15
US-08-845-541B-1
; Sequence 1, Application US/08845541B
; Patent No. 6333310
; GENERAL INFORMATION:
;  APPLICANT: Presta, Leonard
;  APPLICANT:  Urfer, Roman
;  APPLICANT:  Winslow, John
;  TITLE OF INVENTION: NGF VARIANTS
;  FILE REFERENCE: GENENT.039A
;  CURRENT APPLICATION NUMBER: US/08/845,541B
;  CURRENT FILING DATE:  1999-04-25
;  NUMBER OF SEQ ID NOS: 38
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: homo sapien
US-08-845-541B-1

  Query Match             89.4%;  Score 584;  DB 4;  Length 120;
  Best Local Similarity   89.9%;  Pred. No. 7.2e-65;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy      2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
          ||:||:|| |||||||||||||||||||||||| || |||||||||:|||||||||
Db      1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 60

Qy     62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
          |||:||||||||||||||||||||||| | |||||||||||||||||||| ||
Db     61 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 119


Search completed: December  2, 2002, 15:09:43
Job time : 9.36928 secs
```

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 4.25557 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-3
Perfect score: 653
Sequence: 1 PSSTHPVFHMGEFSVCDSVS.....FIRIDTACVCVLSRKATRRG 121

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	653	100.0	121	12	US-10-072-681-3	Sequence 3, Appli
2	594	91.0	121	12	US-10-072-681-2	Sequence 2, Appli
3	584	89.4	241	8	US-08-450-842-5	Sequence 5, Appli
4	584	89.4	241	10	US-09-822-263-16	Sequence 16, Appl
5	584	89.4	242	12	US-10-072-681-1	Sequence 1, Appli
6	579	88.7	153	10	US-09-798-338-2	Sequence 2, Appli
7	579	88.7	157	10	US-09-798-338-4	Sequence 4, Appli
8	579	88.7	163	10	US-09-798-338-6	Sequence 6, Appli
9	579	88.7	167	10	US-09-798-338-8	Sequence 8, Appli
10	573	87.7	121	9	US-09-813-398-9	Sequence 9, Appli
11	435	66.6	142	8	US-08-450-842-52	Sequence 52, Appl
12	378.5	58.0	120	10	US-09-745-032-1	Sequence 1, Appli
13	378.5	58.0	120	10	US-09-742-600-1	Sequence 1, Appli
14	378.5	58.0	120	10	US-09-872-090-1	Sequence 1, Appli
15	378.5	58.0	257	8	US-08-450-842-4	Sequence 4, Appli
16	377.5	57.8	119	10	US-09-745-032-6	Sequence 6, Appli
17	377.5	57.8	119	10	US-09-742-600-6	Sequence 6, Appli
18	377.5	57.8	119	10	US-09-872-090-6	Sequence 6, Appli
19	377.5	57.8	120	10	US-09-745-032-3	Sequence 3, Appli
20	377.5	57.8	120	10	US-09-742-600-3	Sequence 3, Appli
21	377.5	57.8	120	10	US-09-872-090-3	Sequence 3, Appli
22	375.5	57.5	117	10	US-09-745-032-7	Sequence 7, Appli
23	375.5	57.5	117	10	US-09-742-600-7	Sequence 7, Appli
24	375.5	57.5	117	10	US-09-872-090-7	Sequence 7, Appli
25	375.5	57.5	118	10	US-09-745-032-5	Sequence 5, Appli
26	375.5	57.5	118	10	US-09-742-600-5	Sequence 5, Appli
27	375.5	57.5	118	10	US-09-872-090-5	Sequence 5, Appli
28	370.5	56.7	120	9	US-09-813-398-11	Sequence 11, Appl
29	368.5	56.4	120	12	US-10-072-681-5	Sequence 5, Appli
30	345	52.8	72	10	US-09-848-664-21	Sequence 21, Appl
31	326.5	50.0	130	8	US-08-450-842-47	Sequence 47, Appl
32	325.5	49.8	120	10	US-09-745-032-8	Sequence 8, Appli
33	325.5	49.8	120	10	US-09-745-032-10	Sequence 10, Appl
34	325.5	49.8	120	10	US-09-742-600-8	Sequence 8, Appli
35	325.5	49.8	120	10	US-09-742-600-10	Sequence 10, Appl
36	325.5	49.8	247	8	US-08-450-842-3	Sequence 3, Appli
37	324.5	49.7	120	10	US-09-745-032-9	Sequence 9, Appli
38	324.5	49.7	120	10	US-09-742-600-9	Sequence 9, Appli
39	319.5	48.9	120	9	US-09-813-398-10	Sequence 10, Appl
40	314.5	48.2	130	8	US-08-450-842-23	Sequence 23, Appl
41	312.5	47.9	130	8	US-08-450-842-22	Sequence 22, Appl
42	312.5	47.9	131	9	US-09-813-398-12	Sequence 12, Appl
43	312.5	47.9	168	8	US-08-450-842-6	Sequence 6, Appli
44	312.5	47.9	210	8	US-08-450-842-2	Sequence 2, Appli
45	311.5	47.7	130	8	US-08-450-842-60	Sequence 60, Appl

ALIGNMENTS

```
RESULT 1
US-10-072-681-3
; Sequence 3, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: mouse
US-10-072-681-3

  Query Match           100.0%;  Score 653;  DB 12;  Length 121;
  Best Local Similarity  100.0%;  Pred. No. 5.1e-68;
  Matches  121;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60

Qy      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
```

```
Qy     121 G 121
           |
Db     121 G 121


RESULT 2
US-10-072-681-2
; Sequence 2, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-10-072-681-2

  Query Match             91.0%;  Score 594;  DB 12;  Length 121;
  Best Local Similarity   90.8%;  Pred. No. 3e-61;
  Matches  109;  Conservative    3;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60
           |||:||:|| |||||||||||||||||||||||| || ||||||||||||||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCR 60

Qy      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||||| | |||||||||||||||||||||| ||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 120


RESULT 3
US-08-450-842-5
; Sequence 5, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  241 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-5

  Query Match             89.4%;  Score 584;  DB 8;  Length 241;
  Best Local Similarity   89.9%;  Pred. No. 9.4e-60;
  Matches  107;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||| || ||||||||||:||||||||
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
           |||:||||||||||||||||||||||||| | |||||||||||||||||||||| ||
Db     182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240


RESULT 4
US-09-822-263-16
; Sequence 16, Application US/09822263
; Patent No. US20020036598A1
; GENERAL INFORMATION:
;  APPLICANT: Prayaga, Sudhirdas
;  APPLICANT:  Vernet, Corine
;  APPLICANT:  Shimkets, Richard A
;  APPLICANT:  Burgess, Catherine
;  APPLICANT:  Spytek, Kimberly
;  APPLICANT:  Tchernev, Velizar T
;  TITLE OF INVENTION: No. US20020036598A1el Polynucleotides and Polypeptides Encoded
;  FILE REFERENCE: 15966-572 CIP1
;  CURRENT APPLICATION NUMBER: US/09/822,263
;  CURRENT FILING DATE:  2001-06-15
;  PRIOR APPLICATION NUMBER: 09/672,665
;  PRIOR FILING DATE: 2000-09-28
;  PRIOR APPLICATION NUMBER: 60/156,745
;  PRIOR FILING DATE: 1999-09-30
;  PRIOR APPLICATION NUMBER: 60/158,942
;  PRIOR FILING DATE: 1999-10-06
;  PRIOR APPLICATION NUMBER: 60/159,248
;  PRIOR FILING DATE: 1999-10-13
;  PRIOR APPLICATION NUMBER: 60/169,344
;  PRIOR FILING DATE: 1999-12-06
;  PRIOR APPLICATION NUMBER: 60/215,048
;  PRIOR FILING DATE: 2000-06-29
;  NUMBER OF SEQ ID NOS: 36
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 16
;   LENGTH: 241
;   TYPE: PRT
;   ORGANISM: Homo sapiens
```

US-09-822-263-16

Query Match 89.4%; Score 584; DB 10; Length 241;
Best Local Similarity 89.9%; Pred. No. 9.4e-60;
Matches 107; Conservative 4; Mismatches 8; Indels 0; Gaps 0;

Qy 2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
Db 122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 181

Qy 62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
Db 182 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 240

RESULT 5
US-10-072-681-1
; Sequence 1, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: PURIFICATION OF NGF
; FILE REFERENCE: GENENT.037C3
; CURRENT APPLICATION NUMBER: US/10/072,681
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; PRIOR APPLICATION NUMBER: 09/675,503
; PRIOR FILING DATE: 2000-09-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Homo sapien
US-10-072-681-1

Query Match 89.4%; Score 584; DB 12; Length 242;
Best Local Similarity 89.9%; Pred. No. 9.4e-60;
Matches 107; Conservative 4; Mismatches 8; Indels 0; Gaps 0;

Qy 2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
Db 123 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 182

Qy 62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
Db 183 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVRR 241

RESULT 6
US-09-798-338-2
; Sequence 2, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
; APPLICANT: Hubbell, Jeffrey A.
; APPLICANT: Schense, Jason C.
; APPLICANT: Sakiyama, Shelly E.
; TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
; TITLE OF INVENTION: ENGINEERING: INCORPORATION OF PROTEINS
; FILE REFERENCE: 87662-68879
; CURRENT APPLICATION NUMBER: US/09/798,338
; CURRENT FILING DATE: 2001-03-02
; PRIOR APPLICATION NUMBER: 09/141,153
; PRIOR FILING DATE: 1998-08-27
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 2
; LENGTH: 153
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence:Artificial
; OTHER INFORMATION: Protein Sequence
US-09-798-338-2

Query Match 88.7%; Score 579; DB 10; Length 153;
Best Local Similarity 89.8%; Pred. No. 2.1e-59;
Matches 106; Conservative 4; Mismatches 8; Indels 0; Gaps 0;

Qy 2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
Db 35 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 94

Qy 62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
Db 95 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 152

RESULT 7
US-09-798-338-4
; Sequence 4, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
; APPLICANT: Hubbell, Jeffrey A.
; APPLICANT: Schense, Jason C.
; APPLICANT: Sakiyama, Shelly E.
; TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
; TITLE OF INVENTION: ENGINEERING: INCORPORATION OF PROTEINS
; FILE REFERENCE: 87662-68879
; CURRENT APPLICATION NUMBER: US/09/798,338
; CURRENT FILING DATE: 2001-03-02
; PRIOR APPLICATION NUMBER: 09/141,153
; PRIOR FILING DATE: 1998-08-27
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
; LENGTH: 157
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence:Artifical
; OTHER INFORMATION: Protein Sequence
US-09-798-338-4

Query Match 88.7%; Score 579; DB 10; Length 157;
Best Local Similarity 89.8%; Pred. No. 2.1e-59;
Matches 106; Conservative 4; Mismatches 8; Indels 0; Gaps 0;

Qy 2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
Db 39 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 98

Qy 62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
Db 99 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 156

RESULT 8
US-09-798-338-6
; Sequence 6, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
; APPLICANT: Hubbell, Jeffrey A.
; APPLICANT: Schense, Jason C.
; APPLICANT: Sakiyama, Shelly E.
; TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
; TITLE OF INVENTION: ENGINEERING: INCORPORATION OF PROTEINS

```
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 6
;   LENGTH: 163
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-6

  Query Match             88.7%;  Score 579;  DB 10;  Length 163;
  Best Local Similarity   89.8%;  Pred. No. 2.2e-59;
  Matches  106;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db      45 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 104

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
           |||:||||||||||||||||||||||| | |||||||||||||||||||| |
Db     105 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 162


RESULT 9
US-09-798-338-8
; Sequence 8, Application US/09798338
; Patent No. US20010020086A1
; GENERAL INFORMATION:
;  APPLICANT: Hubbell, Jeffrey A.
;  APPLICANT:  Schense, Jason C.
;  APPLICANT:  Sakiyama, Shelly E.
;  TITLE OF INVENTION: ENZYME-MEDIATED MODIFICATION OF FIBRIN FOR TISSUE
;  TITLE OF INVENTION:  ENGINEERING: INCORPORATION OF PROTEINS
;  FILE REFERENCE: 87662-68879
;  CURRENT APPLICATION NUMBER: US/09/798,338
;  CURRENT FILING DATE:  2001-03-02
;  PRIOR APPLICATION NUMBER: 09/141,153
;  PRIOR FILING DATE: 1998-08-27
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 8
;   LENGTH: 167
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:Artificial
;   OTHER INFORMATION: Protein Sequence
US-09-798-338-8

  Query Match             88.7%;  Score 579;  DB 10;  Length 167;
  Best Local Similarity   89.8%;  Pred. No. 2.3e-59;
  Matches  106;  Conservative    4;  Mismatches    8;  Indels    0;  Gaps    0;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRA 61
           ||:||:|| |||||||||||||||||||||||||| || |||||||||:|||||||||
Db      49 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRD 108

Qy      62 SNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATR 119
           |||:||||||||||||||||||||||| | |||||||||||||||||||| |
Db     109 PNPVDSGCRGIDSKHWNSYCTTTHTFVKALTMDGKQAAWRFIRIDTACVCVLSRKAVR 166


RESULT 10
US-09-813-398-9
; Sequence 9, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
;  APPLICANT: Bruce D. Weintraub
;  APPLICANT:  Mariusz W. Szkudlinski
;  APPLICANT:  University of Maryland
;  TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
;  FILE REFERENCE: UOFMD.003C1
;  CURRENT APPLICATION NUMBER: US/09/813,398
;  CURRENT FILING DATE:  2001-03-20
;  PRIOR APPLICATION NUMBER: PCT/US99/05908
;  PRIOR FILING DATE: 1999-03-19
;  PRIOR APPLICATION NUMBER: PCT/US98/19772
;  PRIOR FILING DATE: 1998-09-22
;  NUMBER OF SEQ ID NOS: 41
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 9
;   LENGTH: 121
;   TYPE: PRT
;   ORGANISM: HOMO SAPIEN
US-09-813-398-9

  Query Match             87.7%;  Score 573;  DB 9;  Length 121;
  Best Local Similarity   87.5%;  Pred. No. 7.6e-59;
  Matches  105;  Conservative    5;  Mismatches   10;  Indels    0;  Gaps    0;

Qy       1 PSSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCR 60
           |||:||:|| |||||||||||||||||||||||||| || |||  ||||:|||||||||
Db       1 PSSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNNINSVFKQYFFETKCR 60

Qy      61 ASNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDEKQAAWRFIRIDTACVCVLSRKATRR 120
             |||:|||||||||||||||||||||||: || |||||||||||||||||||| ||
Db      61 DPNPVDSGCRGIDSKHWNSYCTTTHTFVKAMLTDGKQAAWRFIRIDTACVCVLSRKAVRR 120


RESULT 11
US-08-450-842-52
; Sequence 52, Application US/08450842
; Patent No. US20020045576A1
; GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
```

```
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  52:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  142 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-52

  Query Match             66.6%;  Score 435;  DB 8;  Length 142;
  Best Local Similarity   61.7%;  Pred. No. 6.2e-43;
  Matches   87;  Conservative   12;  Mismatches   20;  Indels   22;  Gaps    4;

Qy       2 SSTHPVFHMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSV------------ 49
           ||:||:|| |||||||||||||||||||||||||| || |||||||||
Db       1 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVVLGEVPAAGGSP 60

Qy      50 FRQYFFETKCRASNPVE-------SGCRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWR 101
              |||||||:|:| |  |         ||||:| :|| | |    ::|:||| | : :  ||
Db      61 LRQYFFETRCKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWR 120

Qy     102 FIRIDTA--CVCVLSRKATRR 120
           :||||||  |||||||||  ||
Db     121 WIRIDTACVCVCVLSRKAVRR 141


RESULT 12
US-09-745-032-1
; Sequence 1, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-1

  Query Match             58.0%;  Score 378.5;  DB 10;  Length 120;
  Best Local Similarity   58.9%;  Pred. No. 1.5e-36;
  Matches   66;  Conservative   21;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 119
              ||||| ||||| | |: |:|:|:|::  |   ||:|||||:||| ||||  |
Db      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 13
US-09-742-600-1
; Sequence 1, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-1

  Query Match             58.0%;  Score 378.5;  DB 10;  Length 120;
  Best Local Similarity   58.9%;  Pred. No. 1.5e-36;
  Matches   66;  Conservative   21;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 119
              ||||| ||||| | |: |:|:|:|::  |   ||:|||||:||| ||||  |
Db      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 14
US-09-872-090-1
; Sequence 1, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-872-090-1

  Query Match             58.0%;  Score 378.5;  DB 10;  Length 120;
  Best Local Similarity   58.9%;  Pred. No. 1.5e-36;
  Matches   66;  Conservative   21;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 119
              ||||| ||||| | |: |:|:|:|::  |   ||:|||||:||| ||||  |
Db      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 15
US-08-450-842-4
; Sequence 4, Application US/08450842
; Patent No. US20020045576A1
```

```
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  257 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-4

  Query Match             58.0%;  Score 378.5;  DB 8;  Length 257;
  Best Local Similarity   58.9%;  Pred. No. 3.8e-36;
  Matches   66;  Conservative   21;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       9 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 68
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db     145 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 204

Qy      69 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 119
           ||||| ||||| | |: |:|:|||::  |   ||:||||||||| ||||  |
Db     205 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 256


Search completed: December  2, 2002, 15:14:34
Job time : 4.25557 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 23.7163 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	633	98.9	118	19	AAW48888	Human brain-derive
2	633	98.9	118	21	AAB29114	Brain derived neut
3	622.5	97.3	119	13	AAR29494	BDNF, mouse. Mus
4	622.5	97.3	119	16	AAR76814	Porcine BDNF matur
5	622.5	97.3	119	22	AAB35945	BDNF amino acid se
6	622.5	97.3	120	18	AAW25676	Human BDNF recombi
7	622.5	97.3	142	16	AAR71614	BNDF. Synthetic.
8	622.5	97.3	247	12	AAR11364	Human prepro-Brain
9	622.5	97.3	247	14	AAR37798	Human BNDF. Homo
10	622.5	97.3	247	15	AAR44917	Human BDNF. Homo
11	622.5	97.3	247	16	AAR76817	Human prepro-BDNF.
12	622.5	97.3	247	18	AAW26238	Human preproBDNF.
13	622.5	97.3	247	23	AAM50846	Human recombinant
14	622.5	97.3	249	12	AAR11365	Rat prepro-Brain D
15	622.5	97.3	249	23	ABB57117	Mouse ischaemic co
16	622.5	97.3	252	12	AAR11363	Porcine prepro-Bra
17	622.5	97.3	266	22	AAB69000	Human brain-derive
18	619.5	96.8	246	16	AAR77418	Human brain derive
19	617.5	96.5	119	16	AAR76813	Porcine BDNF matur
20	617.5	96.5	247	22	AAB66930	Human BDNF. Homo
21	614.5	96.0	119	15	AAR54085	Neurotrophic facto
22	610.5	95.4	120	17	AAW29391	Conjugate of brain
23	607	94.8	119	16	AAR76815	Porcine BDNF matur
24	606.5	94.8	247	12	AAR14780	Human BDNF. Homo
25	605.5	94.6	123	13	AAR21860	Chimeric neurotrop
26	605.5	94.6	252	16	AAR76816	Porcine prepro-BDN
27	603.5	94.3	247	12	AAR14779	Human BDNF. Homo
28	603.5	94.3	247	12	AAR14031	Human BDNF. Homo
29	598.5	93.5	129	13	AAR21861	Chimeric neurotrop
30	595.5	93.0	123	13	AAR21857	Chimeric neurotrop
31	592	92.5	125	13	AAR21856	Chimeric neurotrop
32	590.5	92.3	123	13	AAR21858	Chimeric neurotrop
33	582.5	91.0	119	21	AAY92007	Human brain derive
34	569.5	89.0	123	13	AAR21859	Chimeric neurotrop
35	542.5	84.8	124	13	AAR21855	Chimeric neurotrop
36	522.5	81.6	124	13	AAR21854	Chimeric neurotrop
37	469.5	73.4	124	13	AAR21853	Chimeric neurotrop
38	375.5	58.7	236	15	AAR47098	Xenopus NT-4 fragm
39	375.5	58.7	237	13	AAR29491	NT-4, Xenopus. Xe
40	375.5	58.7	239	15	AAR47097	Xenopus mature NT-
41	358.5	56.0	120	13	AAR21869	Chimeric neurotrop
42	350.5	54.8	122	13	AAR21865	Chimeric neurotrop
43	349.5	54.6	122	13	AAR21852	Chimeric neurotrop
44	347.5	54.3	120	13	AAR21863	Chimeric neurotrop
45	346.5	54.1	120	13	AAR21867	Chimeric neurotrop

ALIGNMENTS

RESULT 1
AAW48888
ID AAW48888 standard; Protein; 118 AA.
XX
AC AAW48888;
XX
DT 12-OCT-1998 (first entry)
XX
DE Human brain-derived neurotrophic factor.
XX
KW Neurotrophin; brain-derived neurotrophic factor; BDNF; human;
KW purification; hydrophobic interaction chromatography.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Region 58..68
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
FT Region 109..111
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
XX
PN WO9821234-A2.
XX
PD 22-MAY-1998.
XX
PF 14-NOV-1997; 97WO-US21068.
XX
PR 29-MAY-1997; 97US-0047855.
PR 15-NOV-1996; 96US-0030838.
XX
PA (GETH) GENENTECH INC.

XX
PI Beck JT, Burton LE, Schmelzer CH;
XX
DR WPI; 1998-322333/28.
XX
PT Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT variant(s) - using hydrophobic interaction chromatography,
PT optionally in combination with high performance cation exchange
PT chromatography
XX
PS Disclosure; Page 37; 59pp; English.
XX
CC This polypeptide comprises brain-derived neurotrophic factor
CC (BDNF). Methods are provided for large-scale purification of
CC neurotrophins, including mature BDNF, suitable for clinical use. A
CC claimed method comprises: (1) separating the neurotrophin from the
CC other proteins using a hydrophobic interaction chromatography resin
CC (HICR); and optionally (2) separating the neurotrophin from a
CC chemical variant by high performance cation exchange chromatography
CC (HPCEC). The processes can also be used for purification of e.g.
CC human nerve growth factor (NGF) (see AAW48886), mouse NGF (see
CC AAW48887), neurotrophin-4/5 (see AAW48890) and neurotrophin-3 (see
CC AAW48889). The processes allow separation of neurotrophins from
CC various undesirable misprocessed, misfolded, size, glycosylated or
CC charge forms. They allow selective separation from variants and
CC other molecules, and from other polypeptides with high pI. The
CC processes are applicable to starting materials from various
CC sources, including fermentation broths or lysed bacterial or
CC mammalian cells.
XX
SQ Sequence 118 AA;

Query Match 98.9%; Score 633; DB 19; Length 118;
Best Local Similarity 100.0%; Pred. No. 5.4e-62;
Matches 118; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy 62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118

RESULT 2
AAB29114
ID AAB29114 standard; Protein; 118 AA.
XX
AC AAB29114;
XX
DT 02-FEB-2001 (first entry)
XX
DE Brain derived neutrophic factor.
XX
KW Neutrophin; trkB; trkC; ototoxicity-related balance impairment;
KW Meniere's syndrome; myringitis; otitis media;
KW acute vestibular neuronitis; herpes zoster oticus; labyrinthitis;
KW middle; labyrinthe tumour; petrositis; otosclerosis; bacteria.
XX
OS Homo sapiens.
XX
PN US6121235-A.
XX
PD 19-SEP-2000.
XX
PF 29-DEC-1995; 95US-0581662.
XX
PR 29-DEC-1995; 95US-0581662.
XX
PA (GETH) GENENTECH INC.
XX
PI Gao W;
XX
DR WPI; 2000-618200/59.
XX
PT Treating ototoxin-induced neuronal-related balance impairment and
PT promoting vestibular ganglion neuron survival prior to, upon or after
PT exposure to an ototoxin, comprises administering a trkB or trkC agonist
PT -
XX
PS Disclosure; Column 49-50; 40pp; English.
XX
CC The present invention relates to treating ototoxin-induced
CC neuronal-related balance impairment in a mammal by administering a
CC trkB or trkC agonist, particularly neurotrophin-4/5 (NT-4/5).
CC Ototoxicity-related balance impairments include Meniere's syndrome,
CC myringitis, otitis media, acute vestibular neuronitis, herpes zoster
CC oticus, labyrinthitis, middle or labyrinthe tumours, petrositis and
CC otosclerosis. NT-4/5 may also be used to treat diseases
CC induced by gram positive, gram negative and acid-fast bacteria. The
CC present sequence is a protein used in the invention.
XX
SQ Sequence 118 AA;

Query Match 98.9%; Score 633; DB 21; Length 118;
Best Local Similarity 100.0%; Pred. No. 5.4e-62;
Matches 118; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy 62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118

RESULT 3
AAR29494
ID AAR29494 standard; Protein; 119 AA.
XX
AC AAR29494;
XX
DT 22-APR-1993 (first entry)
XX
DE BDNF, mouse.
XX
KW Neurotrophin; NT; nerve growth factor; NGF;
KW brain-derived neurotrophic factor; BDNF.
XX
OS Mus musculus.
XX
PN WO9220365-A.
XX
PD 26-NOV-1992.
XX
PF 20-MAY-1992; 92WO-US04266.
XX
PR 21-MAY-1991; 91US-0703450.
PR 12-JUL-1991; 91US-0729253.
PR 23-JUL-1991; 91US-0734422.
PR 28-AUG-1991; 91US-0751356.
PR 20-SEP-1991; 91US-0762674.
PR 14-NOV-1991; 91US-0791924.
XX
PA (REGE-) REGENERON PHARM INC.
XX
PI Hallbook F, Ibanez Moliner CF, Persson HB, Yancopoulos GD;
XX
DR WPI; 1992-415468/50.
XX
PT Use of neurotrophin-4 for promoting growth and survival of nerve
PT cells - useful in treating neurological, fertility and
PT immunological disorders and in diagnosis
XX

```
PS   Disclosure; Page 106 + Fig 4B; 180pp; English.
XX
CC   A comparison of the mature NT-4 protein (Xenopus) to the mature
CC   NGF, BDNF, and NT-3 proteins from mouse revealed 51%, 60% and 58%
CC   amino acid identity respectively.  See sequences AAR29491 and
CC   AAR29493-95.
XX
SQ   Sequence   119 AA;

  Query Match            97.3%;  Score 622.5;  DB 13;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 7.8e-61;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 4
AAR76814
ID   AAR76814 standard; Protein; 119 AA.
XX
AC   AAR76814;
XX
DT   07-DEC-1995  (first entry)
XX
DE   Porcine BDNF mature protein.
XX
KW   Brain derived neurotrophic factor; BDNF; neuron; Alzheimer's disease;
KW   trauma; Parkinson's disease.
XX
OS   Sus scrofa.
XX
PN   US5438121-A.
XX
PD   01-AUG-1995.
XX
PF   30-AUG-1989;   89US-0400591.
XX
PR   25-APR-1991;   91US-0691612.
PR   30-AUG-1989;   89US-0400591.
PR   20-AUG-1990;   90US-0570657.
XX
PA   (PLAC ) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Barde Y,  Edgar D,  Leibrock J,  Lottspeich F,  Thoenen H;
PI   Yancopoulos G;
XX
DR   WPI; 1995-274920/36.
XX
PT   New brain derived neurotrophic factor proteins sustain survival of CNS
PT   dopaminergic and cholinergic neurons - used in the diagnosis and
PT   treatment of neurological disorders, eg. trauma, Alzheimer's disease,
PT   etc.
XX
PS   Claim 2; Column 89; 100pp; English.
XX
CC   Mature BDNF proteins isolated from pig brain are given in AAR76813-15.
CC   They are used to isolate nucleic acids encoding BDNF and to develop
CC   antibodies and other prods. useful in the diagnosis and treatment of
CC   neurological disorders.
XX
SQ   Sequence   119 AA;

  Query Match            97.3%;  Score 622.5;  DB 16;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 7.8e-61;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 5
AAB35945
ID   AAB35945 standard; protein; 119 AA.
XX
AC   AAB35945;
XX
DT   26-FEB-2001  (first entry)
XX
DE   BDNF amino acid sequence.
XX
KW   Heparin binding; vascular graft; matrix; cell adhesion; growth factor;
KW   wound healing; dermal wound; wound healing; BDNF.
XX
OS   Unidentified.
XX
PN   WO200064481-A1.
XX
PD   02-NOV-2000.
XX
PF   22-APR-1999;   99WO-IB00800.
XX
PR   22-APR-1999;   99WO-IB00800.
XX
PA   (ETHZ-) ETH ZURICH & UNIV ZURICH.
XX
PI   Sakiyama SE,  Hubbell JA;
XX
DR   WPI; 2001-024627/03.
XX
PT   Matrix for controlled release of growth factor for wound healing, has
PT   substrate that attaches heparin binding peptide, protein growth factor
PT   that bind heparin with low affinity, and heparin or heparin-like
PT   polymer  -
XX
PS   Example 5; Page 21; 48pp; English.
XX
CC   This invention relates to a matrix comprising a substrate capable of
CC   providing attachment of a heparin binding peptide (HBP), a peptide
CC   comprising a binding domain which binds heparin with high affinity,
CC   heparin or heparin-like polymer, and a protein growth factor or peptide
CC   fragment which has a domain that binds heparin with low affinity.
CC   Included in the invention is a vascular graft comprising the matrix,
CC   which is capable of supporting cell adhesion. The matrix is used for
CC   delivering low heparin binding affinity growth factor proteins or
CC   peptides in a controlled manner suitable for wound healing. The matrix
CC   can be used in an article for treating dermal wounds, and in an
CC   implantable sterilized composition capable of supporting cell adhesion.
CC   The present sequence represents a growth factor protein. The protein is
CC   used in an example illustrating that non-heparin-binding growth factors
CC   can be released in a controlled manner from heparin-based drug delivery
CC   systems based on their low affinity for heparin.
XX
SQ   Sequence   119 AA;

  Query Match            97.3%;  Score 622.5;  DB 22;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 7.8e-61;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
```

```
Db      61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 6
AAW25676
ID   AAW25676 standard; protein; 120 AA.
XX
AC   AAW25676;
XX
DT   18-NOV-1997  (first entry)
XX
DE   Human BDNF recombinantly produced by E. coli.
XX
KW   Human; brain derived neurotrophic factor; BDNF; E. coli; epilepsy;
KW   neuroplasticity; adult brain; epileptic seizure.
XX
OS   Homo sapiens.
XX
PN   WO9703689-A1.
XX
PD   06-FEB-1997.
XX
PF   08-JUL-1996;   96WO-US11488.
XX
PR   14-JUL-1995;   95US-0502348.
XX
PA   (AMGE-) AMGEN INC.
PA   (COLD-) COLD SPRING HARBOR LAB.
PA   (UYPA-) UNIV PASTEUR LOUIS.
XX
PI   Carnahan JF,  Depaulis A,  Feltz P,  Larmet Y,  Marescaux C;
PI   Nawa H;
XX
DR   WPI; 1997-132374/12.
XX
PT   Treatment of epilepsy in a mammal - by administration of
PT   brain-derived neurotrophic factor
XX
PS   Claim 5; Page 12; 22pp; English.
XX
CC   This sequence represents recombinant human brain derived neurotrophic
CC   factor (BDNF) which has been produced in E. coli.  BDNF may be used
CC   to treat epilepsy in mammals.  The BDNF has a protective role in the
CC   regulation of neuroplasticity in the adult brain and blocks the
CC   development of epileptic seizures. The BDNF is preferably administered
CC   in an amount of 0.02-0.25 g/kg/day by intraparenchymal or
CC   intraventricular injection.
XX
SQ   Sequence   120 AA;

  Query Match             97.3%;  Score 622.5;  DB 18;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.9e-61;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 7
AAR71614
ID   AAR71614 standard; Protein; 142 AA.
XX
AC   AAR71614;
XX
DT   27-OCT-1995  (first entry)
XX
DE   BNDF.
XX
KW   Primer; polymerase chain reaction; amplify; PCR;
KW   brain-derived neurotrophic factor; BDNF; E.coli; signal sequence;
KW   transformation; dorsal root ganglia; chick embryo.
XX
OS   Synthetic.
XX
PN   JP07023788-A.
XX
PD   27-JAN-1995.
XX
PF   05-JUL-1993;   93JP-0190937.
XX
PR   05-JUL-1993;   93JP-0190937.
XX
PA   (HITA ) HITACHI LTD.
XX
DR   WPI; 1995-100949/14.
DR   N-PSDB; AAQ85998.
XX
PT   Vector encoding Brain-derived neurotrophic factor - for the
PT   effective production of BDNF by recombinant E. coli
XX
PS   Claim 7; Page 2; 9pp; Japanese.
XX
CC   This sequence represents brain-derived neurotrophic factor (BDNF).  The
CC   coding sequence was amplified using the primers given in AAQ85996-97
CC   which were also used to link the amplified sequence was to an E.coli
CC   signal sequence and further E.coli sequences which control gene
CC   expression.  The recombinant sequences were used to transform E.coli
CC   for the large scale production of BDNF.  The biological activity of
CC   the isolated BDNF was evaluated using dorsal root ganglia of an 8 day
CC   chick embryo.
XX
SQ   Sequence   142 AA;

  Query Match             97.3%;  Score 622.5;  DB 16;  Length 142;
  Best Local Similarity   99.2%;  Pred. No. 9.7e-61;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      24 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 83

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      84 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 142


RESULT 8
AAR11364
ID   AAR11364 standard; Protein; 247 AA.
XX
AC   AAR11364;
XX
DT   31-MAY-1991  (first entry)
XX
DE   Human prepro-Brain Derived Neurotrophic Factor.
XX
KW   BDNF; Parkinson's disease; Huntington's Chorea; Alzheimer's Disease;
KW   neuroblastoma; Parkinson-Plus Syndrome.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Protein         129..247
FT                   /label= mature human BDNF
FT   Peptide         1..128
FT                   /label= pre-pro-sequence
XX
PN   WO9103568-A.
XX
PD   21-MAR-1991.
XX
```

```
PF   29-AUG-1990;   90WO-US04915.
XX
PR   20-AUG-1990;   90US-0570657.
PR   30-AUG-1989;   89US-0400591.
XX
PA   (PLAC ) MAX PLANCK GES WISSENSCH.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Hyman C,  Alderson R,  Yancopoulos G,  Barde YA,  Thoenen HFE;
PI   Hohn A,  Lottspeich F,  Lindsay RM;
XX
DR   WPI; 1991-102083/14.
DR   N-PSDB; AAQ11204.
XX
PT   Brain derived neurotrophic factor and DNA encoding it - for
PT   diagnosis and treatment of neurological disorders, eg
PT   Parkinson's disease and retinal degeneration
XX
PS   Claim 25; Page 154; 229pp; English.
XX
CC   A portion of the coding sequence for mature human BDNF was
CC   amplified by PCR and the sequence determined. The deduced amino
CC   acid sequence for the region of at least amino acids 28 to 111 was
CC   identical to that of porcine BDNF. The BDNF can be used to sustain
CC   the survival of dopaminergic and cholinergic neurons of the CNS, to
CC   suppress the proliferation of astroglial cells, to inhibit the uptake
CC   of GABA into neurons and to upregulate the expression of NGF receptor
CC   on the cell surface.
CC   See also AAQ11203, AAQ11205-6 and AAQ11604.
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 12;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 9
AAR37798
ID   AAR37798 standard; Protein; 247 AA.
XX
AC   AAR37798;
XX
DT   29-SEP-1993  (first entry)
XX
DE   Human BNDF.
XX
KW   Chimeric; human; prepro; NGF; brain-derived neurotrophic factor;
KW   BDNF; chimera; fusion; mouse; nerve growth factor.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Region          1..128
FT                   /note= "Prepro region"
FT   Protein         129..247
FT                   /note= "Mature BDNF"
XX
PN   WO9310150-A.
XX
PD   27-MAY-1993.
XX
PF   13-NOV-1992;   92WO-US09792.
XX
PR   14-NOV-1991;   91US-0792492.
XX
PA   (AMGE-) AMGEN.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Gies D,  Hu SS,  Ip N,  Squinto SP,  Yancopoulos GD;
XX
DR   WPI; 1993-182492/22.
DR   N-PSDB; AAQ42570.
XX
PT   Eukaryotic expression of neurotrophins - using prepro region of a
PT   different neurotrophin for more efficient post-translational
PT   processing
XX
PS   Disclosure; Fig 3; 80pp; English.
XX
CC   This sequence represents human brain-derived neurotrophic factor
CC   (BDNF).  The protein encoded by this sequence promotes the survival
CC   of dorsal root ganglions.  BDNF is a highly basic protein (isoelectric
CC   point, pI 10.1) which has a molecular weight of 12.3 kD.  These
CC   characteristics are very similar to the nerve growth factor (NGF).
CC   The cDNA encoding this protein may be used in the construction of a
CC   chimeric nucleic acid molecule to encode a preproNGF/BDNF chimera
CC   (see also AAQ42568-69).
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 14;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 10
AAR44917
ID   AAR44917 standard; Protein; 247 AA.
XX
AC   AAR44917;
XX
DT   18-OCT-1994  (first entry)
XX
DE   Human BDNF.
XX
KW   BDNF; brain derived nerve factor; promotor; expression; vector.
XX
OS   Homo sapiens.
XX
PN   JP05317049-A.
XX
PD   03-DEC-1993.
XX
PF   01-JUN-1992;   92JP-0140570.
XX
PR   31-MAY-1991;   91JP-0129666.
XX
PA   (TAKE ) TAKEDA CHEM IND LTD.
XX
DR   WPI; 1994-011018/02.
DR   N-PSDB; AAQ54374.
XX
PT   Expression promoter contg. 142 specified bases - is used in
PT   prepn. of diseased model animal and drug screening system
XX
PS   Claim 1; Fig 1; 15pp; Japanese.
XX
CC   The sequence (AAQ54374) encodes a human brain derived nerve nutrient
CC   factor. This is also transformed into a bacterium using the vector
```

```
CC   shown in sequence (AAQ54375). The factor can be used for the
CC   preparation of animal models of diseases and their treatment as
CC   well as establishing a drug screening system.
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 15;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 11
AAR76817
ID   AAR76817 standard; Protein; 247 AA.
XX
AC   AAR76817;
XX
DT   07-DEC-1995  (first entry)
XX
DE   Human prepro-BDNF.
XX
KW   Brain derived neurotrophic factor; BDNF; neuron; Alzheimer's disease;
KW   trauma; Parkinson's disease.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Active-site     1..128
FT                   /label= Prepro-peptide
XX
PN   US5438121-A.
XX
PD   01-AUG-1995.
XX
PF   30-AUG-1989;   89US-0400591.
XX
PR   25-APR-1991;   91US-0691612.
PR   30-AUG-1989;   89US-0400591.
PR   20-AUG-1990;   90US-0570657.
XX
PA   (PLAC ) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Barde Y,  Edgar D,  Leibrock J,  Lottspeich F,  Thoenen H;
PI   Yancopoulos G;
XX
DR   WPI; 1995-274920/36.
DR   N-PSDB; AAQ93135.
XX
PT   New brain derived neurotrophic factor proteins sustain survival of CNS
PT   dopaminergic and cholinergic neurons - used in the diagnosis and
PT   treatment of neurological disorders, eg. trauma, Alzheimer's disease,
PT   etc.
XX
PS   Disclosure; Fig.4B-H; 100pp; English.
XX
CC   An adult human retina cDNA library was screened using a probe
CC   based on pig BDNF to obtain a clone, phBDNF-C-1, that encoded
CC   prepro-BDNF.
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 16;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 12
AAW26238
ID   AAW26238 standard; Protein; 247 AA.
XX
AC   AAW26238;
XX
DT   16-MAR-1998  (first entry)
XX
DE   Human preproBDNF.
XX
KW   Fusion protein; hydrophilic spacer; recombinant; expression system;
KW   carboxypeptidase; preproNGF.
XX
OS   Homo sapiens.
XX
PN   WO9728272-A1.
XX
PD   07-AUG-1997.
XX
PF   31-JAN-1997;   97WO-US01470.
XX
PR   31-JAN-1996;   96US-0595043.
XX
PA   (TECH-) TECHNOLOGENE INC.
XX
PI   Sgarlato GD;
XX
DR   WPI; 1997-402624/37.
DR   N-PSDB; AAT80163.
XX
PT   Recombinant protein expression system for fusion protein production
PT   - useful for high quantity production of authentic recombinant
PT   proteins
XX
PS   Example 6; Page 142-143; 194pp; English.
XX
CC   A novel recombinant vector has been developed which comprises a
CC   nucleotide sequence encoding a fusion protein. The fusion protein
CC   comprises three domains joined together in order, from N-terminus to
CC   C-terminus, of a first domain comprising a protein of interest, a second
CC   domain comprising a hydrophilic spacer and an affinity domain, each
CC   domain comprising amino acid residues. The present sequence represents
CC   human preproBDNF, used in example 6 of the present invention. The
CC   recombinant vector is used for the production of authentic recombinant
CC   proteins of interest. The method of the invention is useful for the
CC   expression of fusion proteins capable of isolation by affinity
CC   chromatography in pro- or eukaryotic cells. This method allows
CC   for the efficient cleavage and generation of authentic proteins of
CC   interest that do not contain extraneous (i.e. non-naturally occurring)
CC   amino acids.
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 18;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
```

```
Db    189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247

RESULT 13
AAM50846
ID   AAM50846 standard; Protein; 247 AA.
XX
AC   AAM50846;
XX
DT   01-MAY-2002  (first entry)
XX
DE   Human recombinant brain-derived growth factor.
XX
KW   Brain-derived growth factor; BDNF; human; neurotrophic factor; NTF;
KW   Huntington's disease; Parkinson's disease; Alzheimer's disease;
KW   amyotrophic lateral sclerosis; neurodegenerative disease; cancer;
KW   neuroprotective; nootropic; anticonvulsant; antiparkinsonian;
KW   cytostatic; therapy.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= Signal_peptide
FT   Peptide         19..128
FT                   /label= Propeptide
FT   Protein         129..247
FT                   /label= Mature_protein
FT   Disulfide-bond  141..208
FT   Disulfide-bond  186..237
FT   Disulfide-bond  196..237
FT   Disulfide-bond  196..239
FT   Misc-difference 66
FT                   /note= "may be replaced by Met"
XX
PN   WO200203071-A2.
XX
PD   10-JAN-2002.
XX
PF   05-JUL-2001; 2001WO-US21472.
XX
PR   05-JUL-2000; 2000US-215778P.
XX
PA   (PANG-) PANGENE CORP.
XX
PI   Bates AT;
XX
DR   WPI; 2002-179638/23.
XX
PT   Screening for a neurotrophic factor mimetic, useful for treating, e.g.,
PT   cancer and Alzheimer's, comprises combining a candidate mimetic with a
PT   fragment of a tyrosine kinase protein  -
XX
PS   Disclosure; Fig 6; 107pp; English.
XX
CC   The present sequence is that of human recombinant brain-derived
CC   growth factor (BDNF), a neurotrophic factor (NTF) that binds to TrkB
CC   receptor tyrosine kinase.  The invention concerns Trks and their
CC   ligands that modulate cell growth, differentiation and survival.
CC   Trk proteins are known to mediate the activities of neurotrophins
CC   and are also known proto-oncogenes.  Methods are claimed for screening
CC   for small molecule NTF mimetics, such as the cyclic peptide given
CC   in AAM50844, capable of binding to a Trk protein or of modulating
CC   the binding of a neurotrophin to a Trk protein.  Also claimed are
CC   medicaments comprising a small molecule NTF mimetic and their use
CC   in claimed methods for treatment of cancer or a neurodegenerative
CC   disease selected from Huntington's disease, Parkinson's disease,
CC   Alzheimer's disease and amyotrophic lateral sclerosis.
XX
SQ   Sequence   247 AA;

  Query Match             97.3%;  Score 622.5;  DB 23;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db    189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 14
AAR11365
ID   AAR11365 standard; Protein; 249 AA.
XX
AC   AAR11365;
XX
DT   31-MAY-1991  (first entry)
XX
DE   Rat prepro-Brain Derived Neurotrophic Factor.
XX
KW   BDNF; Parkinson's disease; Huntington's Chorea; Alzheimer's Disease;
KW   neuroblastoma; Parkinson-Plus Syndrome.
XX
OS   Rattus rattus.
XX
FH   Key             Location/Qualifiers
FT   Protein         131..249
FT                   /label= mature rat BDNF
FT   Peptide         1..130
FT                   /label= pre-pro-sequence
XX
PN   WO9103568-A.
XX
PD   21-MAR-1991.
XX
PF   29-AUG-1990;   90WO-US04915.
XX
PR   20-AUG-1990;   90US-0570657.
PR   30-AUG-1989;   89US-0400591.
XX
PA   (PLAC ) MAX PLANCK GES WISSENSCH.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Hyman C,  Alderson R,  Yancopoulos G,  Barde YA,  Thoenen HFE;
PI   Hohn A,  Lottspeich F,  Lindsay RM;
XX
DR   WPI; 1991-102083/14.
DR   N-PSDB; AAQ11205.
XX
PT   Brain derived neurotrophic factor and DNA encoding it - for
PT   diagnosis and treatment of neurological disorders, eg
PT   Parkinson's disease and retinal degeneration
XX
PS   Claim 30; Page 155; 229pp; English.
XX
CC   A portion of the coding sequence for mature rat BDNF was
CC   amplified by PCR and the sequence determined. The sequence contains
CC   a number of conservative changes from the porcine BDNF gene
CC   although the deduced amino acid sequence for the region of at least
CC   amino acids 28 to 111 was identical to that of porcine BDNF.
CC   The BDNF can be used to sustain the survival of dopaminergic and
CC   cholinergic neurons of the CNS, to suppress the proliferation of
CC   astroglial cells, to inhibit the uptake of GABA into neurons and to
CC   upregulate the expression of NGF receptor on the cell surface.
CC   See also AAQ11203-4, AAQ11206 and AAQ11604.
XX
SQ   Sequence   249 AA;

  Query Match             97.3%;  Score 622.5;  DB 12;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 2e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;
```

```
Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249
```

RESULT 15
ABB57117
ID ABB57117 standard; Protein; 249 AA.
XX
AC ABB57117;
XX
DT 07-MAR-2002 (first entry)
XX
DE Mouse ischaemic condition related protein sequence SEQ ID NO:266.
XX
KW Mouse; ischaemia; compressive ischaemia; occlusive ischaemia;
KW vasospastic ischaemia; ischaemic condition; ischaemic disease.
XX
OS Mus musculus.
XX
PN WO200188188-A2.
XX
PD 22-NOV-2001.
XX
PF 18-MAY-2001; 2001WO-JP04192.
XX
PR 18-MAY-2000; 2000JP-0145977.
XX
PA (UYNI-) UNIV NIHON SCHOOL JURIDICAL PERSON.
XX
PI Ishikawa K, Asai S, Takahashi Y, Nagata T, Ishii Y;
XX
DR WPI; 2002-034733/04.
DR N-PSDB; ABI99369.
XX
PT Examining the ischemic condition (e.g. occlusive ischemia) by measuring
PT expression levels of particular genes defined in the specification or
PT by determining the expression profile of a gene group comprising these
PT genes -
XX
PS Claim 2; Page 748-749; 2690pp; English.
XX
CC The present invention describes a method for examining ischaemic
CC conditions, comprising measuring the expression levels of particular
CC genes (I) in a test sample or determining the expression profile of a
CC gene group in the sample comprising genes selected from (I). The method
CC is useful for examining the ischaemic condition (e.g. compressive
CC ischaemia, occlusive ischaemia or vasospastic ischaemia) by measuring
CC expression levels of particular genes (ABI99202 to ABI99912, encoding
CC the protein sequences in ABB57020 to ABB57374) or by determining the
CC expression profile of a gene group comprising these genes. The
CC expression levels or expression profiles produced by these genes are
CC used as an indicator when screening for ischaemic condition-improving
CC drugs or therapeutics for ischaemic diseases. ABI99913 and ABI99914
CC represent PCR primers for a mouse ischaemic condition related sequence,
CC which are used in the exemplification of the present invention.
XX
SQ Sequence 249 AA;

```
  Query Match             97.3%;  Score 622.5;  DB 23;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 2e-60;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249

Search completed: December 2, 2002, 15:08:39
Job time : 24.7163 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 9.48652 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	622.5	97.3	247	2	A40304	brain-derived neur
2	622.5	97.3	249	2	S12555	brain-derived neur
3	622.5	97.3	249	2	B40304	brain-derived neur
4	622.5	97.3	252	2	A30361	brain-derived neur
5	613.5	95.9	248	2	JC6183	brain-derived neur
6	594	92.8	114	2	I84765	brain-derived neur
7	570.5	89.1	269	2	I51708	brain-derived neur
8	564	88.1	114	2	I50606	brain-derived neur
9	559	87.3	114	2	I51599	brain-derived neur
10	375.5	58.7	236	2	JH0400	neurotrophin-4 pre
11	344.5	53.8	257	2	C40304	neurotrophin-3 pre
12	344.5	53.8	257	2	I50400	neurotrophin-3 pre
13	344.5	53.8	258	2	S09155	neurotrophin-3 pre
14	344.5	53.8	282	2	A35781	hippocampus-derive
15	336.5	52.6	209	2	B42687	neurotrophin-4 pre
16	332.5	52.0	210	2	A42687	neurotrophin-4 pre
17	317	49.5	229	2	I46614	nerve growth facto
18	317	49.5	243	2	A26311	nerve growth facto
19	313	48.9	125	2	A26312	nerve growth facto
20	311.5	48.7	286	1	NGHUBM	nerve growth facto
21	310	48.4	303	1	NGRTBA	nerve growth facto
22	308.5	48.2	235	2	S14481	nerve growth facto
23	308.5	48.2	245	2	I56570	beta-nerve growth
24	308.5	48.2	307	1	NGMSMG	nerve growth facto
25	306.5	47.9	241	2	JL0097	nerve growth facto
26	301.5	47.1	243	2	I51193	nerve growth facto
27	300.5	47.0	117	2	S28161	nerve growth facto
28	298	46.6	116	1	NGNJXI	nerve growth facto
29	295.5	46.2	116	2	A58566	nerve growth facto
30	295.5	46.2	246	2	A59218	nerve growth facto
31	254	39.7	286	2	S50855	neurotrophin-6 - s
32	253.5	39.6	194	2	I51709	nerve growth facto
33	74	11.6	796	2	H82406	probable lipase VC
34	69.5	10.9	184	2	G83591	hypothetical prote
35	69	10.8	476	2	T29463	hypothetical prote
36	69	10.8	481	2	H75198	hypothetical prote
37	69	10.8	1006	2	T13331	probable tail prot
38	68	10.6	195	2	S77401	hypothetical prote
39	68	10.6	245	1	PSHUAM	14-3-3 protein zet
40	68	10.6	245	2	A47389	14-3-3 protein zet
41	68	10.6	245	2	S65013	14-3-3 protein zet
42	68	10.6	294	2	T34199	hypothetical prote
43	68	10.6	347	2	S60428	hypothetical prote
44	68	10.6	479	2	A97027	hydrolase of alpha
45	67.5	10.5	1039	2	C87083	C-term lysyl-tRNA

ALIGNMENTS

RESULT 1
A40304
brain-derived neurotrophic factor precursor - human
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 21-Jul-2000
C;Accession: B36208; A60536; A40304; A37218; A61115; I38072
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: B36208
A;Molecule type: DNA
A;Residues: 1-247 <JON>
A;Cross-references: GB:M37762; NID:g179402; PIDN:AAA51820.1; PID:g179403
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: A60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-65,'M',67-247 <YAN>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: A40304
A;Molecule type: mRNA
A;Residues: 1-247 <MAI>
A;Cross-references: GB:M61176; NID:g179404; PIDN:AAA69805.1; PID:g896463
A;Note: the sequence in GenBank entry HUMBDNFB, release 106.0, (PID:g896463) begins t
R;Yamamoto, H.; Gurney, M.E.
J. Neurosci. 10, 3469-3478, 1990
A;Title: Human platelets contain brain-derived neurotrophic factor.
A;Reference number: A37218; MUID:91038253; PMID:2230938
A;Accession: A37218
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 138-236 <YAM>
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Martin, E.; Burton, L.E.; Shih, A.; Laram
Endocrinology 129, 1289-1294, 1991
A;Title: Primary structure and biological activity of human brain-derived neurotrophi
A;Reference number: A61115; MUID:91339743; PMID:1874171
A;Accession: A61115
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-65,'M',67-247 <ROS>
R;Shintani, A.; Ono, Y.; Kaisho, Y.; Igarashi, K.
Biochem. Biophys. Res. Commun. 182, 325-332, 1992
A;Title: Characterization of the 5'-flanking region of the human brain-derived neurot
A;Reference number: I38072; MUID:92118032; PMID:1339267
A;Accession: I38072

```
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-247 <SHI>
A;Cross-references: EMBL:X60201; NID:g3928269; PIDN:CAA42761.1; PID:g496626
A;Note: the authors do not discuss this mRNA sequence in this reference; attribution is
C;Genetics:
A;Gene: GDB:BDNF
A;Cross-references: GDB:125916; OMIM:113505
A;Map position: 11p13-11p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: dimer; glycoprotein
F;1-16/Domain: signal sequence #status predicted <SIG>
F;17-128/Domain: propeptide #status predicted <PRO>
F;129-247/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;121/Binding site: carbohydrate (Asn) (covalent) #status experimental

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-56;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 2
S12555
brain-derived neurotrophic factor - mouse
N;Alternate names: BDNF protein
C;Species: Mus musculus (house mouse)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
C;Accession: S12555; S51180; S51181
R;Hofer, M.; Pagliusi, S.R.; Hohn, A.; Leibrock, J.; Barde, Y.A.
EMBO J. 9, 2459-2464, 1990
A;Title: Regional distribution of brain-derived neurotrophic factor mRNA in the adult mo
A;Reference number: S12555; MUID:90316101; PMID:2369898
A;Accession: S12555
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-249 <HOF>
A;Cross-references: GB:X55573; NID:g287898; PIDN:CAA39159.1; PID:g287899
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51180
A;Status: preliminary
A;Molecule type: protein
A;Residues: 131-135 <KOL>
A;Accession: S51181
A;Status: preliminary
A;Molecule type: protein
A;Residues: 112-121 <KO2>
C;Superfamily: nerve growth factor beta chain

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-56;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249


RESULT 3
B40304
brain-derived neurotrophic factor precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
C;Accession: B60536; B40304; S24955; I60275; I60545
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: B60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-249 <YAN>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: B40304
A;Molecule type: mRNA
A;Residues: 1-249 <MAI>
A;Cross-references: GB:M61175; NID:g203122; PIDN:AAA16841.1; PID:g203123
R;Metsis, M.
submitted to the EMBL Data Library, June 1992
A;Reference number: S24955
A;Accession: S24955
A;Molecule type: mRNA
A;Residues: 8-249 <MET>
A;Cross-references: EMBL:X67108; NID:g55820; PIDN:CAA47481.1; PID:g55821
R;Ohara, O.; Gahara, Y.; Teraoka, H.; Kitamura, T.
Gene 121, 383-386, 1992
A;Title: A rat brain-derived neurotrophic factor-enconding gene generates multiple tr
A;Reference number: I60275; MUID:93077058; PMID:1446835
A;Accession: I60275
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-249 <RES>
A;Cross-references: GB:D10938; NID:g220996; PIDN:BAA01732.1; PID:g286257
R;Timmusk, T.; Palm, K.; Metsis, M.; Reintam, T.; Paalme, V.; Saarma, M.; Persson, H.
Neuron 10, 475-489, 1993
A;Title: Multiple promoters direct tissue-specific expression of the rat BDNF gene.
A;Reference number: I60545; MUID:93213504; PMID:8461137
A;Accession: I60545
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 8-249 <RE2>
A;Cross-references: EMBL:X67108; NID:g55820; PIDN:CAA47481.1; PID:g55821
C;Genetics:
A;Gene: BDNF
C;Superfamily: nerve growth factor beta chain

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-56;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249


RESULT 4
A30361
brain-derived neurotrophic factor precursor - pig
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 18-Oct-1989 #sequence_revision 18-Oct-1989 #text_change 16-Jul-1999
C;Accession: A30361
R;Leibrock, J.; Lottspeich, F.; Hohn, A.; Hofer, M.; Hengerer, B.; Masiakowski, P.; T
Nature 341, 149-152, 1989
A;Title: Molecular cloning and expression of brain-derived neurotrophic factor.
A;Reference number: A30361; MUID:89384868; PMID:2779653
```

```
A;Accession: A30361
A;Molecule type: mRNA
A;Residues: 1-252 <LEI>
A;Cross-references: GB:X16713; NID:g1903; PIDN:CAA34685.1; PID:g1904
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor
F;126/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 252;
  Best Local Similarity   99.2%;  Pred. No. 1.1e-56;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     134 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 193

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     194 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 252


RESULT 5
JC6183
brain-derived neurotrophic factor precursor - bovine
C;Species: Bos primigenius taurus (cattle)
C;Date: 02-Sep-1997 #sequence_revision 05-Sep-1997 #text_change 20-Jun-2000
C;Accession: JC6183
R;Arab, S.F.; Krohn, K.; Lachmund, A.; Unsicker, K.; Suter-Crazzolara, C.
Gene 185, 95-98, 1997
A;Title: The gene encoding bovine brain-derived neurotrophic factor (BDNF).
A;Reference number: JC6183; MUID:97186702; PMID:9034318
A;Accession: JC6183
A;Molecule type: mRNA
A;Residues: 1-248 <ARA>
A;Cross-references: EMBL:X97914; NID:g1668709; PIDN:CAA66488.1; PID:g1668710
A;Experimental source: adrenal glands
C;Comment: This factor plays the essential roles in the regulation of neuron survival ar
dopaminergic, glutamatergic, and cholinergic neurons, and it is effective in the treatme
C;Superfamily: nerve growth factor beta chain
C;Keywords: neurotrophic factor
F;1-16/Domain: signal sequence #status predicted <SIG>
F;17-248/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;198-211/Region: nerve growth factor signature

  Query Match             95.9%;  Score 613.5;  DB 2;  Length 248;
  Best Local Similarity   97.5%;  Pred. No. 9.1e-56;
  Matches  116;  Conservative    1;  Mismatches    1;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||: |||||||||||||||||||||||||||||||||||
Db     130 HSDPARRGELSVCDSISEWVTAADKRLAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 189

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     190 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 248


RESULT 6
I84765
brain-derived neurotrophic factor - rhesus macaque (fragment)
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 04-Sep-1997 #sequence_revision 13-Mar-1998 #text_change 16-Jul-1999
C;Accession: I84765
R;Isackson, P.J.; Towner, M.D.; Huntsman, M.M.
FEBS Lett. 285, 260-264, 1991
A;Title: Comparison of mammalian, chicken and Xenopus brain-derived neurotrophic factor
A;Reference number: I50606; MUID:91309745; PMID:1906813
A;Accession: I84765
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-114 <ISA>
A;Cross-references: EMBL:X61475; NID:g288317; PIDN:CAA43703.1; PID:g288318
C;Superfamily: nerve growth factor beta chain
C;Keywords: brain; growth factor

  Query Match             92.8%;  Score 594;  DB 2;  Length 114;
  Best Local Similarity   100.0%;  Pred. No. 4.1e-54;
  Matches  110;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
           |||||||||||||||||||||||||||||||||||||||||||||||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111


RESULT 7
I51708
brain-derived neurotrophic factor precursor - southern platyfish
C;Species: Xiphophorus maculatus (southern platyfish)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51708; S26673
R;Gotz, R.; Raulf, F.; Schartl, M.
J. Neurochem. 59, 432-442, 1992
A;Title: Brain-derived neurotrophic factor is more highly conserved in structure and
A;Reference number: I51708; MUID:92333301; PMID:1629719
A;Accession: I51708
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-269 <GOT>
A;Cross-references: EMBL:X59942; NID:g65275; PIDN:CAA42567.1; PID:g65276
C;Genetics:
A;Gene: BDNF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-150/Domain: propeptide #status predicted <PRO>
F;151-269/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;143/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;163-230,208-259,218-261/Disulfide bonds: #status predicted

  Query Match             89.1%;  Score 570.5;  DB 2;  Length 269;
  Best Local Similarity   89.1%;  Pred. No. 2.7e-51;
  Matches  106;  Conservative    7;  Mismatches    5;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||:|||||||||||||:|||| |||||:|||| ||||:|||||  ||||||||||||||
Db     151 HSDPSRRGELSVCDSISQWVTAVDKKTAIDMSGQTVTVMEKVPVPNGQLKQYFYETKCNP 210

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||:|||||||: |||||||||||||||||||:|||||||||||||||| |||||||||
Db     211 MGYTKDGCRGIDKRHYTSQCRTTQSYVRALTMDSKKKIGWRFIRIDTSCVCTLTIKRGR 269


RESULT 8
I50606
brain-derived neurotrophic factor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I50606
R;Isackson, P.J.; Towner, M.D.; Huntsman, M.M.
FEBS Lett. 285, 260-264, 1991
A;Title: Comparison of mammalian, chicken and Xenopus brain-derived neurotrophic fact
A;Reference number: I50606; MUID:91309745; PMID:1906813
A;Accession: I50606
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-114 <ISA>
A;Cross-references: EMBL:X61476; NID:g288305; PIDN:CAA43704.1; PID:g288306
C;Superfamily: nerve growth factor beta chain

  Query Match             88.1%;  Score 564;  DB 2;  Length 114;
  Best Local Similarity   93.6%;  Pred. No. 5.1e-51;
  Matches  103;  Conservative    3;  Mismatches    4;  Indels    0;  Gaps    0;
```

```
Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||| |||||||:|||||||| |||||||||| ||||||||||||||||
Db       2 HSDPARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
           ||||||||||||||||||||||||||||||:|||:||||||||||||
Db      62 KGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCV 111


RESULT 9
I51599
brain-derived neurotrophic factor - African clawed frog (fragment)
C;Species: Xenopus laevis (African clawed frog)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51599
R;Isackson, P.J.; Towner, M.D.; Huntsman, M.M.
FEBS Lett. 285, 260-264, 1991
A;Title: Comparison of mammalian, chicken and Xenopus brain-derived neurotrophic factor
A;Reference number: I50606; MUID:91309745; PMID:1906813
A;Accession: I51599
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-114 <ISA>
A;Cross-references: EMBL:X61477; NID:g288363; PIDN:CAA43705.1; PID:g288364
C;Superfamily: nerve growth factor beta chain

  Query Match             87.3%;  Score 559;  DB 2;  Length 114;
  Best Local Similarity   92.7%;  Pred. No. 1.7e-50;
  Matches  102;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||:||||||||| ||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAANKKTAVDMSGATVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
           ||| |||||||:||:||||||||||||| |||||::||||||||||||
Db      62 MGYMKEGCRGIEKRYWNSQCRTTQSYVRAFTMDSKKKVGWRFIRIDTSCV 111


RESULT 10
JH0400
neurotrophin-4 precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 16-Jul-1999
C;Accession: JH0400
R;Hallboeoek, F.; Ibanez, C.F.; Persson, H.
Neuron 6, 845-858, 1991
A;Title: Evolutionary studies of the nerve growth factor family reveal a novel member ab
A;Reference number: JH0400; MUID:91222573; PMID:2025430
A;Accession: JH0400
A;Molecule type: DNA
A;Residues: 1-236 <HAL>
A;Cross-references: GB:Z30090; NID:g455533; PIDN:CAA82906.1; PID:g455534
C;Comment: This protein belongs to the nerve growth factor family.
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-113/Domain: propeptide #status predicted <PRO>
F;114-236/Product: neurotrophin-4 #status predicted <MAT>
F;106/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             58.7%;  Score 375.5;  DB 2;  Length 236;
  Best Local Similarity   60.9%;  Pred. No. 3.2e-31;
  Matches   70;  Conservative   18;  Mismatches   24;  Indels    3;  Gaps    2;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
           :|||||||||:: |||  ||:||||  |  |||: ::    | |||||:|||||| | |
Db     123 SRRGELSVCDSVNVWVT--DKRTAVDDRGKIVTVMSEIQTLTGPLKQYFFETKCNPSGST 180

Qy      66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
             ||||:||: | |:|:  |||||||||:|: | :|||:|||||:|| ||  : ||
Db     181 TRGCRGVDKKQWISECKAKQSYVRALTIDANKLVGWRWIRIDTACVCTLLSRTGR 235


RESULT 11
C40304
neurotrophin-3 precursor - human
N;Alternate names: nerve growth factor 2; NGF-2
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
C;Accession: A36208; JH0141; C40304; S10719; C60536
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: A36208
A;Molecule type: DNA
A;Residues: 1-257 <JON>
A;Cross-references: GB:M37763; NID:g189300; PIDN:AAA59953.1; PID:g189301
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Lewis, M.; Shih, A.; Laramee, G.R.; Nikol
Neuron 4, 767-773, 1990
A;Title: Primary structure and biological activity of a novel human neurotrophic fact
A;Reference number: JH0141; MUID:90262727; PMID:2344409
A;Accession: JH0141
A;Molecule type: DNA
A;Residues: 1-257 <ROS>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: C40304
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M61180; NID:g189302; PIDN:AAA63231.1; PID:g189303
R;Kaisho, Y.; Yoshimura, K.; Nakahama, K.
FEBS Lett. 266, 187-191, 1990
A;Title: Cloning and expression of a cDNA encoding a novel human neurotrophic factor.
A;Reference number: S10719; MUID:90306351; PMID:2365067
A;Accession: S10719
A;Molecule type: mRNA
A;Residues: 1-257 <KAI>
A;Cross-references: GB:X53655; NID:g287794; PIDN:CAA37703.1; PID:g287795
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: C60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-73,'Q',75-77,'R',79-108,'T',110-257 <YAN>
C;Genetics:
A;Gene: GDB:NTF3
A;Cross-references: GDB:125917; OMIM:162660
A;Map position: 12p13-12p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-138/Domain: propeptide #status predicted <PRO>
F;139-257/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             53.8%;  Score 344.5;  DB 2;  Length 257;
  Best Local Similarity   57.4%;  Pred. No. 5.5e-28;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     144 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 201

Qy      66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           | |||||| :||||||:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     202 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 256


RESULT 12
```

```
I50400
neurotrophin-3 precursor - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I50400; S42227
R;Maisonpierre, P.C.; Belluscio, L.; Conover, J.C.; Yancopoulos, G.D.
DNA Seq. 3, 49-54, 1992
A;Title: Gene sequences of chicken BDNF and NT-3.
A;Reference number: I50400; MUID:93091238; PMID:1457809
A;Accession: I50400
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M83378; NID:g212464; PIDN:AAA68880.1; PID:g212465
R;Hallboeoek, F.; Ibanez, C.F.; Ebendal, T.; Persson, H.
Eur. J. Neurosci. 5, 1-14, 1993
A;Title: Cellular localization of brain-derived neurotrophic factor and neurotrophin-3 m
A;Reference number: S42227; MUID:94084226; PMID:8074744
A;Accession: S42227
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 32-257 <HAL>
A;Cross-references: EMBL:Z30092; NID:g455531; PIDN:CAA82908.1; PID:g927570
C;Genetics:
A;Gene: NT-3
C;Superfamily: nerve growth factor beta chain

  Query Match            53.8%;  Score 344.5;  DB 2;  Length 257;
  Best Local Similarity  57.4%;  Pred. No. 5.5e-28;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     144 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAKPV 201

Qy      66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           | |||||| :||||||:|:|:|:|||||| :: | :|||:|||||||  |: | ||
Db     202 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 256


RESULT 13
S09155
neurotrophin-3 precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 16-Jul-1999
C;Accession: S09155; S51179
R;Hohn, A.; Leibrock, J.; Bailey, K.; Barde, Y.A.
Nature 344, 339-341, 1990
A;Title: Identification and characterization of a novel member of the nerve growth factc
A;Reference number: S09155; MUID:90190865; PMID:2314473
A;Accession: S09155
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-258 <HOH>
A;Cross-references: GB:X53257; NID:g53451; PIDN:CAA37348.1; PID:g53452
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51179
A;Status: preliminary
A;Molecule type: protein
A;Residues: 140-152 <KOL>
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;140-258/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match            53.8%;  Score 344.5;  DB 2;  Length 258;
  Best Local Similarity  57.4%;  Pred. No. 5.5e-28;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     145 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 202

Qy      66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           | |||||| :||||||:|:|:|:|||||| :: | :|||:|||||||  |: | ||
Db     203 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 257


RESULT 14
A35781
hippocampus-derived neurotrophic factor precursor - rat
N;Alternate names: neurotrophin-3 precursor
C;Species: Rattus norvegicus (Norway rat)
C;Date: 05-Oct-1990 #sequence_revision 05-Oct-1990 #text_change 16-Jul-1999
C;Accession: A35781; A40094
R;Ernfors, P.; Ibanez, C.F.; Ebendal, T.; Olson, L.; Persson, H.
Proc. Natl. Acad. Sci. U.S.A. 87, 5454-5458, 1990
A;Title: Molecular cloning and neurotrophic activities of a protein with structural s
A;Reference number: A35781; MUID:90319130; PMID:2164684
A;Accession: A35781
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-282 <ERN>
A;Cross-references: GB:M34643
R;Maisonpierre, P.C.; Belluscio, L.; Squinto, S.; Ip, N.Y.; Furth, M.E.; Lindsay, R.M
Science 247, 1446-1451, 1990
A;Title: Neurotrophin-3: a neurotrophic factor related to NGF and BDNF.
A;Reference number: A40094; MUID:90208301; PMID:2321006
A;Accession: A40094
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 25-282 <MAI>
A;Cross-references: GB:M33968; NID:g205771; PIDN:AAA41727.1; PID:g205772
C;Superfamily: nerve growth factor beta chain

  Query Match            53.8%;  Score 344.5;  DB 2;  Length 282;
  Best Local Similarity  57.4%;  Pred. No. 6e-28;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     169 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 226

Qy      66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           | |||||| :||||||:|:|:|||||| :: | :|||:|||||||  |: | ||
Db     227 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 281


RESULT 15
B42687
neurotrophin-4 precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
C;Accession: B42687; JH0504; JH0505
R;Ip, N.Y.; Ibanez, C.F.; Nye, S.H.; McClain, J.; Jones, P.F.; Gies, D.R.; Belluscio,
Proc. Natl. Acad. Sci. U.S.A. 89, 3060-3064, 1992
A;Title: Mammalian neurotrophin-4: structure, chromosomal localization, tissue distri
A;Reference number: A42687; MUID:92212967; PMID:1313578
A;Accession: B42687
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-209 <IPA>
A;Cross-references: GB:M86742; NID:g205775; PIDN:AAA41728.1; PID:g205776
R;Berkemeier, L.R.; Winslow, J.W.; Kaplan, D.R.; Nikolics, K.; Goeddel, D.V.; Rosenth
Neuron 7, 857-866, 1991
A;Title: Neurotrophin-5: a novel neurotrophic factor that activates trk and trkB.
A;Reference number: JH0503; MUID:92075279; PMID:1742028
A;Accession: JH0504
A;Molecule type: DNA
A;Residues: 1-209 <BER>
A;Accession: JH0505
A;Molecule type: mRNA
```

```
A;Residues: 1-176,'P',178-209 <BER1>
A;Cross-references: GB:S69323; NID:g240025; PIDN:AAB20548.1; PID:g240026
C;Comment: This protein is a targed-derived, diffusible neurotrophic factor.
C;Comment: The neurotrophins stimulate autophosphorylation and transduce signals through
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-79/Domain: propeptide #status predicted <PRO>
F;80-209/Product: neurotrophin-5 #status predicted <NEU>
F;75/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match            52.6%;  Score 336.5;  DB 2;  Length 209;
  Best Local Similarity  54.5%;  Pred. No. 2.9e-27;
  Matches   67;  Conservative   21;  Mismatches   24;  Indels   11;  Gaps    4;

Qy       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 61
           :|||||:|||::| |||  |::|||||: |  | || :|| : |  |:|||:||:|
Db      88 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKAESA 145

Qy      62 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIK 116
               |    ||||:|:|||  |:|:  |||||||| ||: |:|||:|||||:|| ||  :
Db     146 GEGGPGVGGGGCRGVDRRHWLSECKAKQSYVRALTADSQGRVGWRWIRIDTACVCTLLSR 205

Qy     117 RGR 119
           ||
Db     206 TGR 208


Search completed: December  2, 2002, 15:13:59
Job time : 10.4865 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 4.88277 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	622.5	97.3	247	1	BDNF_HUMAN	P23560 homo sapien
2	622.5	97.3	247	1	BDNF_PROLO	O18755 procyon lot
3	622.5	97.3	247	1	BDNF_URSML	O18753 ursus malay
4	622.5	97.3	249	1	BDNF_MOUSE	P21237 mus musculu
5	622.5	97.3	249	1	BDNF_RAT	P23363 rattus norv
6	622.5	97.3	252	1	BDNF_PIG	P14082 sus scrofa
7	621.5	97.1	255	1	BDNF_CAVPO	O70183 cavia porce
8	618.5	96.6	247	1	BDNF_FELCA	Q9tst3 felis silve
9	618.5	96.6	247	1	BDNF_URSAR	O18752 ursus arcto
10	613.5	95.9	248	1	BDNF_BOVIN	Q95106 bos taurus
11	594	92.8	114	1	BDNF_MACMU	Q06225 macaca mula
12	592.5	92.6	246	1	BDNF_CHICK	P25429 gallus gall
13	579.5	90.5	270	1	BDNF_CYPCA	Q90322 cyprinus ca
14	570.5	89.1	269	1	BDNF_XIPMA	Q02193 xiphophorus
15	559	87.3	114	1	BDNF_XENLA	P25432 xenopus lae
16	375.5	58.7	236	1	NT4_XENLA	P24727 xenopus lae
17	344.5	53.8	257	1	NT3_CHICK	P25433 gallus gall
18	344.5	53.8	257	1	NT3_HUMAN	P20783 homo sapien
19	344.5	53.8	258	1	NT3_MOUSE	P20181 mus musculu
20	344.5	53.8	258	1	NT3_RAT	P18280 rattus norv
21	342.5	53.5	260	1	NT3_XENLA	P25435 xenopus lae
22	339.5	53.0	257	1	NT3_FELCA	Q9tst2 felis silve
23	336.5	52.6	209	1	NT5_RAT	P34131 rattus norv
24	332.5	52.0	210	1	NT5_HUMAN	P34130 homo sapien
25	317	49.5	229	1	NGF_PIG	Q29074 sus scrofa
26	317	49.5	243	1	NGF_CHICK	P05200 gallus gall
27	311.5	48.7	241	1	NGF_HUMAN	P01138 homo sapien
28	310	48.4	231	1	NGF_BOVIN	P13600 bos taurus
29	310	48.4	241	1	NGF_PRANA	P20675 praomys nat
30	308.5	48.2	231	1	NGF_XENLA	P21617 xenopus lae
31	308.5	48.2	241	1	NGF_MOUSE	P01139 mus musculu
32	308.5	48.2	241	1	NGF_RAT	P25427 rattus norv
33	306.5	47.9	241	1	NGF_CAVPO	P19093 cavia porce
34	301.5	47.1	243	1	NGF_BUNMU	P34128 bungarus mu
35	300.5	47.0	117	1	NGF_DABRR	P30894 daboia russ
36	295	46.1	116	1	NGF_NAJNA	P01140 naja naja (
37	292.5	45.7	116	1	NGF_NAJAT	P21377 naja atra (
38	253.5	39.6	194	1	NGF_XIPMA	P34129 xiphophorus
39	245	38.3	140	1	NT7_CYPCA	O93474 cyprinus ca
40	245	38.3	233	1	NT7_BRARE	O73797 brachydanio
41	222	34.7	186	1	NT6G_HUMAN	P34134 homo sapien
42	221	34.5	257	1	NT6A_HUMAN	P34132 homo sapien
43	215	33.6	257	1	NT6B_HUMAN	P34133 homo sapien
44	214	33.4	43	1	BDNF_RAJCL	P25430 raja clavat
45	209	32.7	43	1	BDNF_VIPLE	P25431 vipera lebe

ALIGNMENTS

RESULT 1
BDNF_HUMAN
ID BDNF_HUMAN STANDARD; PRT; 247 AA.
AC P23560; Q9UC24; Q9BYY7;
DT 01-NOV-1991 (Rel. 20, Created)
DT 01-NOV-1991 (Rel. 20, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Brain-derived neurotrophic factor precursor (BDNF).
GN BDNF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=91045937; PubMed=2236018;
RA Jones K.R., Reichardt L.F.;
RT "Molecular cloning of a human gene that is a member of the nerve
RT growth factor family.";
RL Proc. Natl. Acad. Sci. U.S.A. 87:8060-8064(1990).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=91365361; PubMed=1889806;
RA Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA Yancopoulos G.D.;
RT "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT gene structures, distributions, and chromosomal localizations.";
RL Genomics 10:558-568(1991).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=92118032; PubMed=1339267;
RA Shintani A., Ono Y., Kaisho Y., Igarashi K.;
RT "Characterization of the 5'-flanking region of the human
RT brain-derived neurotrophic factor gene.";
RL Biochem. Biophys. Res. Commun. 182:325-332(1992).
RN [4]
RP SEQUENCE FROM N.A.
RA Cheng Y., Gu J.;
RL Submitted (MAY-1995) to the EMBL/GenBank/DDBJ databases.
RN [5]
RP SEQUENCE FROM N.A.
RA Wu J., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
RN [6]
RP SEQUENCE OF 185-227 FROM N.A.
RC TISSUE=Leukocyte;
RX MEDLINE=91222573; PubMed=2025430;
RA Hallboeoek F., Ibanez C.F., Persson H.;
RT "Evolutionary studies of the nerve growth factor family reveal a
RT novel member abundantly expressed in Xenopus ovary.";
RL Neuron 6:845-858(1991).
RN [7]
RP SEQUENCE OF 129-144.
RC TISSUE=Serum;
RX MEDLINE=96136633; PubMed=8527932;

```
RA   Rosenfeld R.D., Zeni L., Haniu M., Talvenheimo J., Radka S.F.,
RA   Bennett L., Miller J.A., Welcher A.A.;
RT   "Purification and identification of brain-derived neurotrophic factor
RT   from human serum.";
RL   Protein Expr. Purif. 6:465-471(1995).
RN   [8]
RP   SEQUENCE OF 12-197 FROM N.A.
RX   MEDLINE=21082082; PubMed=11214319;
RA   Murphy W.J., Eizirik E., Johnson W.E., Zhang Y.P., Ryder O.A.,
RA   O'Brien S.J.;
RT   "Molecular phylogenetics and the origins of placental mammals.";
RL   Nature 409:614-618(2001).
RN   [9]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=95217877; PubMed=7703225;
RA   Robinson R.C., Radziejewski C., Stuart D.I., Jones E.Y.;
RT   "Structure of the brain-derived neurotrophic factor/neurotrophin 3
RT   heterodimer.";
RL   Biochemistry 34:4139-4146(1995).
RN   [10]
RP   CHARACTERIZATION, AND MUTAGENESIS OF ARG-54.
RX   MEDLINE=21201090; PubMed=11152678;
RA   Mowla S.J., Farhadi H.F., Pareek S., Atwal J.K., Morris S.J.,
RA   Seidah N.G., Murphy R.A.;
RT   "Biosynthesis and post-translational processing of the precursor to
RT   brain-derived neurotrophic factor.";
RL   J. Biol. Chem. 276:12660-12666(2001).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- PTM: The propeptide is N-glycosylated and glycosulfated.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M37762; AAA51820.1; -.
DR   EMBL; M61176; AAA69805.2; -.
DR   EMBL; X60201; CAA42761.1; -.
DR   EMBL; AF400438; AAK92487.1; -.
DR   EMBL; M61181; AAA96140.1; -.
DR   EMBL; X91251; CAA62632.1; -.
DR   EMBL; AY011481; AAG47514.1; -.
DR   PIR; B36208; B36208.
DR   PIR; A40304; A40304.
DR   PDB; 1BND; 04-APR-96.
DR   PDB; 1B8M; 09-FEB-99.
DR   Genew; HGNC:1033; BDNF.
DR   MIM; 113505; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 2.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; Glycoprotein; Polymorphism; 3D-structure.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    128
FT   CHAIN      129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   DISULFID   141    208
FT   DISULFID   186    237
FT   DISULFID   196    239
FT   CARBOHYD   121    121       N-LINKED (GLCNAC. . .).
FT   SITE        57     58       CLEAVAGE (BY S1P).
FT   VARIANT     66     66       V -> M.
FT                               /FTId=VAR_004626.
FT   VARIANT     75     75       Q -> H (IN DBSNP:1048218).
FT                               /FTId=VAR_011797.
FT   VARIANT    125    125       R -> M (IN DBSNP:1048220).
FT                               /FTId=VAR_011798.
FT   VARIANT    127    127       R -> L (IN DBSNP:1048221).
FT                               /FTId=VAR_011799.
FT   MUTAGEN     54     54       R->A: ABOLISHES PROCESSING BY S1P.
SQ   SEQUENCE   247 AA;  27818 MW;  0A60488254722A99 CRC64;

  Query Match             97.3%;  Score 622.5;  DB 1;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 2
BDNF_PROLO
ID   BDNF_PROLO     STANDARD;      PRT;   247 AA.
AC   O18755;
DT   15-JUL-1998 (Rel. 36, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Procyon lotor (Raccoon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Procyonidae; Procyon.
OX   NCBI_TaxID=9654;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lin F.;
RL   Submitted (MAY-1997) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF003188; AAB71654.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    128       BY SIMILARITY.
FT   CHAIN      129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   141    208       BY SIMILARITY.
FT   DISULFID   186    237       BY SIMILARITY.
FT   DISULFID   196    239       BY SIMILARITY.
FT   CARBOHYD   121    121       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   247 AA;  27834 MW;  5FC377E4FE1F52A0 CRC64;
```

```
  Query Match            97.3%;  Score 622.5;  DB 1;  Length 247;
  Best Local Similarity  99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 3
BDNF_URSML
ID   BDNF_URSML     STANDARD;      PRT;   247 AA.
AC   O18753;
DT   15-JUL-1998 (Rel. 36, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Ursus malayanus (Malayan sun bear) (Helarctos malayanus).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Ursidae; Helarctos.
OX   NCBI_TaxID=9634;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lin F.;
RL   Submitted (MAY-1997) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF002240; AAB71653.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    128       BY SIMILARITY.
FT   CHAIN      129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   141    208       BY SIMILARITY.
FT   DISULFID   186    237       BY SIMILARITY.
FT   DISULFID   196    239       BY SIMILARITY.
FT   CARBOHYD   121    121       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   247 AA;  27807 MW;  FA1B3DFC4704D883 CRC64;

  Query Match            97.3%;  Score 622.5;  DB 1;  Length 247;
  Best Local Similarity  99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 4
BDNF_MOUSE
ID   BDNF_MOUSE     STANDARD;      PRT;   249 AA.
AC   P21237;
DT   01-MAY-1991 (Rel. 18, Created)
DT   01-MAY-1991 (Rel. 18, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90316101; PubMed=2369898;
RA   Hofer M., Pagliusi S.R., Hohn A., Leibrock J., Barde Y.-A.;
RT   "Regional distribution of brain-derived neurotrophic factor mRNA in
RT   the adult mouse brain.";
RL   EMBO J. 9:2459-2464(1990).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X55573; CAA39159.1; -.
DR   PIR; S12555; S12555.
DR   HSSP; P23560; 1B8M.
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    130
FT   CHAIN      131    249       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   143    210       BY SIMILARITY.
FT   DISULFID   188    239       BY SIMILARITY.
FT   DISULFID   198    241       BY SIMILARITY.
FT   CARBOHYD   123    123       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   249 AA;  28123 MW;  90CE1F16BB235C97 CRC64;

  Query Match            97.3%;  Score 622.5;  DB 1;  Length 249;
  Best Local Similarity  99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249
```

```
RESULT 5
BDNF_RAT
ID   BDNF_RAT       STANDARD;      PRT;   249 AA.
AC   P23363;
DT   01-NOV-1991 (Rel. 20, Created)
DT   01-NOV-1991 (Rel. 20, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Ohara O.;
RL   Submitted (XXX-1992) to the EMBL/GenBank/DDBJ databases.
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92111157; PubMed=1966766;
RA   Yancopoulos G.D., Maisonpierre P.C., Ip N.Y., Aldrich T.H.,
RA   Belluscio L., Boulton T.G., Cobb M.H., Squinto S.P., Furth M.E.;
RT   "Neurotrophic factors, their receptors, and the signal transduction
RT   pathways they activate.";
RL   Cold Spring Harb. Symp. Quant. Biol. 55:371-379(1990).
RN   [4]
RP   SEQUENCE OF 8-249 FROM N.A.
RX   MEDLINE=93213504; PubMed=8461137;
RA   Timmusk T., Palm K., Metsis M., Reintam T., Palme V., Saarma M.,
RA   Persson H.;
RT   "Multiple promoters direct tissue-specific expression of the rat BDNF
RT   gene.";
RL   Neuron 10:475-489(1993).
RN   [5]
RP   SEQUENCE OF 187-229 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M61178; AAA63483.1; -.
DR   EMBL; M61175; AAA16841.1; -.
DR   EMBL; X67108; CAA47481.1; -.
DR   EMBL; D10938; BAA01732.1; -.
DR   PIR; B40304; B40304.
DR   PIR; B60536; B60536.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    130
FT   CHAIN      131    249       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   143    210       BY SIMILARITY.
FT   DISULFID   188    239       BY SIMILARITY.
FT   DISULFID   198    241       BY SIMILARITY.
FT   CARBOHYD   123    123       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   249 AA;  28109 MW;  F9CAAA5DEF9A78B7 CRC64;

  Query Match             97.3%;  Score 622.5;  DB 1;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249


RESULT 6
BDNF_PIG
ID   BDNF_PIG       STANDARD;      PRT;   252 AA.
AC   P14082;
DT   01-JAN-1990 (Rel. 13, Created)
DT   01-JAN-1990 (Rel. 13, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
RX   MEDLINE=89384868; PubMed=2779653;
RA   Leibrock J., Lottspeich F., Hohn A., Hofer M., Hengerer B.,
RA   Masiakowski P., Thoenen H., Barde Y.-A.;
RT   "Molecular cloning and expression of brain-derived neurotrophic
RT   factor.";
RL   Nature 341:149-152(1989).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND CENTRAL NERVOUS SYSTEM.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X16713; CAA34685.1; -.
DR   PIR; A30361; A30361.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
```

```
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    133
FT   CHAIN      134    252       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   146    213       BY SIMILARITY.
FT   DISULFID   191    242       BY SIMILARITY.
FT   DISULFID   201    244       BY SIMILARITY.
FT   CARBOHYD   126    126       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   252 AA;  28287 MW;  5DABB45F73BE0B7E CRC64;

  Query Match             97.3%;  Score 622.5;  DB 1;  Length 252;
  Best Local Similarity   99.2%;  Pred. No. 1e-58;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     134 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 193

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||| |||||||| ||||||||
Db     194 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 252


RESULT 7
BDNF_CAVPO
ID   BDNF_CAVPO     STANDARD;      PRT;   255 AA.
AC   O70183;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Hartley white; TISSUE=Liver;
RA   Inoue M., Nakayama C., Noguchi H.;
RL   Submitted (MAR-1998) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AB012097; BAA25176.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    136       BY SIMILARITY.
FT   CHAIN      137    255       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   149    216       BY SIMILARITY.
FT   DISULFID   194    245       BY SIMILARITY.
FT   DISULFID   204    247       BY SIMILARITY.
FT   CARBOHYD   129    129       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   255 AA;  28308 MW;  BA95BA3EBBB8FA04 CRC64;

  Query Match             97.1%;  Score 621.5;  DB 1;  Length 255;
  Best Local Similarity   98.3%;  Pred. No. 1.3e-58;
  Matches  117;  Conservative    1;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||:||||||||||||||||||||||||||||||||||||||||||||
Db     137 HSDPARRGELSVCDSVSEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 196

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||| |||||||| ||||||||
Db     197 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 255


RESULT 8
BDNF_FELCA
ID   BDNF_FELCA     STANDARD;      PRT;   247 AA.
AC   Q9TST3;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Felis silvestris catus (Cat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX   NCBI_TaxID=9685;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20211727; PubMed=10745216;
RA   Lein E.S., Hohn A., Shatz C.J.;
RT   "Dynamic regulation of BDNF and NT-3 expression during visual system
RT   development.";
RL   J. Comp. Neurol. 420:1-18(2000).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF192537; AAF03423.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    128       BY SIMILARITY.
FT   CHAIN      129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   DISULFID   141    208       BY SIMILARITY.
FT   DISULFID   186    237       BY SIMILARITY.
FT   DISULFID   196    239       BY SIMILARITY.
FT   CARBOHYD   121    121       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   247 AA;  27802 MW;  864BA1BD26E0A0F3 CRC64;

  Query Match             96.6%;  Score 618.5;  DB 1;  Length 247;
  Best Local Similarity   98.3%;  Pred. No. 2.7e-58;
```

```
  Matches  117;  Conservative    0;  Mismatches    1;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDGISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 9
BDNF_URSAR
ID   BDNF_URSAR     STANDARD;      PRT;   247 AA.
AC   O18752;
DT   15-JUL-1998 (Rel. 36, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Ursus arctos (Brown bear) (Grizzly bear).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Ursidae; Ursus.
OX   NCBI_TaxID=9644;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lin F.;
RL   Submitted (MAY-1997) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF002239; AAB71652.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    128       BY SIMILARITY.
FT   CHAIN      129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   141    208       BY SIMILARITY.
FT   DISULFID   186    237       BY SIMILARITY.
FT   DISULFID   196    239       BY SIMILARITY.
FT   CARBOHYD   121    121       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   247 AA;  27837 MW;  EF1B3256F704D883 CRC64;

  Query Match             96.6%;  Score 618.5;  DB 1;  Length 247;
  Best Local Similarity   98.3%;  Pred. No. 2.7e-58;
  Matches  117;  Conservative    0;  Mismatches    1;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||| |||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPTRRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 10
BDNF_BOVIN
ID   BDNF_BOVIN     STANDARD;      PRT;   248 AA.
AC   Q95106;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF) (Fragment).
GN   BDNF.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=97186702; PubMed=9034318;
RA   Arab S.F., Krohn K., Lachmund A., Unsicker K., Suter-Crazzolara C.;
RT   "The gene encoding bovine brain-derived neurotrophic factor (BDNF).";
RL   Gene 185:95-98(1997).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X97914; CAA66488.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER      1      1
FT   SIGNAL      <1     16       POTENTIAL.
FT   PROPEP      17    129       BY SIMILARITY.
FT   CHAIN      130    248       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE        55     56       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID   142    209       BY SIMILARITY.
FT   DISULFID   187    238       BY SIMILARITY.
FT   DISULFID   197    240       BY SIMILARITY.
SQ   SEQUENCE   248 AA;  28012 MW;  27EB97F233F777C7 CRC64;

  Query Match             95.9%;  Score 613.5;  DB 1;  Length 248;
  Best Local Similarity   97.5%;  Pred. No. 9.1e-58;
  Matches  116;  Conservative    1;  Mismatches    1;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||: |||||||||||||||||||||||||||||||||
Db     130 HSDPARRGELSVCDSISEWVTAADKRLAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 189

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     190 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 248


RESULT 11
BDNF_MACMU
ID   BDNF_MACMU     STANDARD;      PRT;   114 AA.
AC   Q06225;
DT   01-FEB-1995 (Rel. 31, Created)
```

```
DT   01-FEB-1995 (Rel. 31, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Brain-derived neurotrophic factor (BDNF) (Fragment).
GN   BDNF.
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91309745; PubMed=1906813;
RA   Isackson P.J., Towner M.D., Huntsman M.M.;
RT   "Comparison of mammalian, chicken and Xenopus brain-derived
RT   neurotrophic factor coding sequences.";
RL   FEBS Lett. 285:260-264(1991).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X61475; CAA43703.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   NON_TER       1      1
FT   DISULFID     14     81       BY SIMILARITY.
FT   DISULFID     59    110       BY SIMILARITY.
FT   DISULFID     69    112       BY SIMILARITY.
FT   NON_TER     114    114
SQ   SEQUENCE   114 AA;  12956 MW;  D5F1BEDDD8F4B925 CRC64;

  Query Match             92.8%;  Score 594;  DB 1;  Length 114;
  Best Local Similarity   100.0%;  Pred. No. 4.5e-56;
  Matches  110;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
           |||||||||||||||||||||||||||||||||||||||||||||||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111


RESULT 12
BDNF_CHICK
ID   BDNF_CHICK     STANDARD;      PRT;   246 AA.
AC   P25429;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-DEC-1992 (Rel. 24, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Leghorn; TISSUE=Liver;
RX   MEDLINE=93091238; PubMed=1457809;
RA   Maisonpierre P., Belluscio L., Conover J.C., Yancopoulos G.D.;
RT   "Gene sequences of chicken BDNF and NT-3.";
RL   DNA Seq. 3:49-54(1992).
RN   [2]
RP   SEQUENCE OF 127-240 FROM N.A.
RX   MEDLINE=91309745; PubMed=1906813;
RA   Isackson P.J., Towner M.D., Huntsman M.M.;
RT   "Comparison of mammalian, chicken and Xenopus brain-derived
RT   neurotrophic factor coding sequences.";
RL   FEBS Lett. 285:260-264(1991).
RN   [3]
RP   SEQUENCE OF 184-226 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a novel
RT   member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M83377; AAC42220.1; -.
DR   EMBL; X61476; CAA43704.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    127
FT   CHAIN       128    246       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE         57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID    140    207       BY SIMILARITY.
FT   DISULFID    185    236       BY SIMILARITY.
FT   DISULFID    195    238       BY SIMILARITY.
FT   CARBOHYD    120    120       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   246 AA;  27714 MW;  CE1D93E99FDD3BA0 CRC64;

  Query Match             92.6%;  Score 592.5;  DB 1;  Length 246;
  Best Local Similarity   93.3%;  Pred. No. 1.5e-55;
  Matches  111;  Conservative    3;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||| ||||||:|||||||| |||||||| ||||||||||||||
Db     128 HSDPARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNP 187

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||:|||:|||||||||| ||||||||
Db     188 KGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 246


RESULT 13
BDNF_CYPCA
ID   BDNF_CYPCA     STANDARD;      PRT;   270 AA.
AC   Q90322;
```

```
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Cyprinus carpio (Common carp).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Cyprinus.
OX   NCBI_TaxID=7962;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RA   Liu T.S., Chang G.D., Huang F.L., Lo T.B.;
RL   Submitted (JAN-1994) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L27171; AAA49204.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    151       BY SIMILARITY.
FT   CHAIN       152    270       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   DISULFID    164    231       BY SIMILARITY.
FT   DISULFID    209    260       BY SIMILARITY.
FT   DISULFID    219    262       BY SIMILARITY.
FT   CARBOHYD    144    144       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   270 AA;  29572 MW;  049DE1ECE4742EAA CRC64;

  Query Match             90.5%;  Score 579.5;  DB 1;  Length 270;
  Best Local Similarity   90.8%;  Pred. No. 4e-54;
  Matches  108;  Conservative    7;  Mismatches    3;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||:|||| |||||:|||| ||||||||||: ||||||||||||||
Db     152 HSDPARRGELSVCDSISQWVTALDKKTAIDMSGQTVTVLEKVPVTNGQLKQYFYETKCNP 211

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           :|||||||||||||:|||||||||||||||||::||||||||||||| ||||||||
Db     212 LGYTKEGCRGIDKRHYNSQCRTTQSYVRALTMDSKRKIGWRFIRIDTSCVCTLTIKRGR 270


RESULT 14
BDNF_XIPMA
ID   BDNF_XIPMA     STANDARD;      PRT;   269 AA.
AC   Q02193;
DT   01-JUL-1993 (Rel. 26, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Xiphophorus maculatus (Southern platyfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Atherinomorpha;
OC   Cyprinodontiformes; Poeciliidae; Xiphophorus.
OX   NCBI_TaxID=8083;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92333301; PubMed=1629719;
RA   Gotz R., Raulf F., Schartl M.;
RT   "Brain-derived neurotrophic factor is more highly conserved in
RT   structure and function than nerve growth factor during vertebrate
RT   evolution.";
RL   J. Neurochem. 59:432-442(1992).
CC   -!- FUNCTION: BDNF PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT
CC       ARE ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X59942; CAA42567.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    150
FT   CHAIN       151    269       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   DISULFID    163    230       BY SIMILARITY.
FT   DISULFID    208    259       BY SIMILARITY.
FT   DISULFID    218    261       BY SIMILARITY.
FT   CARBOHYD    143    143       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   269 AA;  29709 MW;  DAE774B79F2E5E52 CRC64;

  Query Match             89.1%;  Score 570.5;  DB 1;  Length 269;
  Best Local Similarity   89.1%;  Pred. No. 3.5e-53;
  Matches  106;  Conservative    7;  Mismatches    5;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||:|||||||||||||:|||| |||||:|||| ||||:|||||  ||||||||||||||
Db     151 HSDPSRRGELSVCDSISQWVTAVDKKTAIDMSGQTVTVMEKVPVPNGQLKQYFYETKCNP 210

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||:|||||||||: ||||||||||||||||||:|||||||||||| ||||||||
Db     211 MGYTKDGCRGIDKRHYTSQCRTTQSYVRALTMDSKKKIGWRFIRIDTSCVCTLTIKRGR 269


RESULT 15
BDNF_XENLA
ID   BDNF_XENLA     STANDARD;      PRT;   114 AA.
AC   P25432;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-JUN-1994 (Rel. 29, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update)
DE   Brain-derived neurotrophic factor (BDNF) (Fragment).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91309745; PubMed=1906813;
RA   Isackson P.J., Towner M.D., Huntsman M.M.;
```

```
RT   "Comparison of mammalian, chicken and Xenopus brain-derived
RT   neurotrophic factor coding sequences.";
RL   FEBS Lett. 285:260-264(1991).
RN   [2]
RP   SEQUENCE OF 58-100 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X61477; CAA43705.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   NON_TER       1      1
FT   DISULFID     14     81       BY SIMILARITY.
FT   DISULFID     59    110       BY SIMILARITY.
FT   DISULFID     69    112       BY SIMILARITY.
FT   CONFLICT     73     73       E -> D (IN REF. 2).
FT   CONFLICT     96     96       K -> R (IN REF. 2).
FT   NON_TER     114    114
SQ   SEQUENCE   114 AA;  13031 MW;  409A0CFB5E8EA887 CRC64;

  Query Match             87.3%;  Score 559;  DB 1;  Length 114;
  Best Local Similarity   92.7%;  Pred. No. 2.3e-52;
  Matches  102;  Conservative    5;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||:||||||||| ||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAANKKTAVDMSGATVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
           ||| |||||||:||:||||||||||||||| ||||||::||||||||||
Db      62 MGYMKEGCRGIEKRYWNSQCRTTQSYVRAFTMDSKKKVGWRFIRIDTSCV 111


Search completed: December  2, 2002, 15:12:43
Job time : 4.88277 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 18.415 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	622.5	97.3	153	11	Q9CYL3	Q9cyl3 mus musculu
2	622.5	97.3	247	6	O97759	O97759 ailurus ful
3	622.5	97.3	249	11	Q8VHH4	Q8vhh4 mus musculu
4	592.5	92.6	177	13	Q9I8L2	Q9i8l2 poephila gu
5	578.5	90.4	246	13	Q8QG75	Q8qg75 phrynocepha
6	574.5	89.8	246	13	Q8QG76	Q8qg76 japalura sp
7	572.5	89.5	270	13	Q9YH42	Q9yh42 brachydanio
8	562.5	87.9	246	13	Q8QG74	Q8qg74 cyclophiops
9	552.5	86.3	247	13	Q8QG77	Q8qg77 tylototrito
10	544	85.0	101	6	Q9TT22	Q9tt22 macaca fusc
11	448	70.0	85	6	O02792	O02792 notoryctes
12	445	69.5	85	6	O13114	O13114 isoodon mac
13	445	69.5	85	6	O13122	O13122 tarsipes ro
14	445	69.5	85	6	O02795	O02795 ornithorhyn
15	445	69.5	85	6	O02798	O02798 petaurus br
16	445	69.5	85	6	O13104	O13104 cercartetus
17	445	69.5	85	6	O13105	O13105 dasyuroides
18	445	69.5	85	6	O02801	O02801 tachyglossu
19	444	69.4	85	6	O02803	O02803 trichosurus
20	437	68.3	85	6	O02790	O02790 macropus fu
21	369	57.7	184	6	Q9BFJ5	Q9bfj5 tupaia mino
22	369	57.7	185	6	Q9BFK6	Q9bfk6 talpa altai
23	369	57.7	185	6	Q9BFK5	Q9bfk5 condylura c
24	369	57.7	186	6	Q9BFL3	Q9bfl3 choloepus h
25	369	57.7	186	6	Q9BFL2	Q9bfl2 choloepus d
26	369	57.7	186	6	Q9BFK9	Q9bfk9 tamandua te
27	369	57.7	186	6	Q9BFK8	Q9bfk8 myrmecophag
28	369	57.7	186	6	Q9BFK4	Q9bfk4 sorex arane
29	369	57.7	186	6	Q9BFK2	Q9bfk2 loxodonta a
30	369	57.7	186	6	Q9BFK1	Q9bfk1 macroscelid
31	369	57.7	186	6	Q9BFJ9	Q9bfj9 orycteropus
32	369	57.7	186	6	Q9BFJ8	Q9bfj8 sylvilagus
33	369	57.7	186	6	Q9BFJ7	Q9bfj7 ochotona hy
34	369	57.7	186	6	Q9BFJ4	Q9bfj4 lemur catta
35	369	57.7	186	6	Q9BFJ2	Q9bfj2 macaca mula
36	369	57.7	186	6	Q9BFJ1	Q9bfj1 hylobates c
37	369	57.7	186	6	Q9BFI9	Q9bfi9 artibeus ja
38	369	57.7	186	6	Q9BFI8	Q9bfi8 pteropus gi
39	369	57.7	186	6	Q9BFI7	Q9bfi7 rousettus l
40	369	57.7	186	6	Q9BFI6	Q9bfi6 nycteris th
41	369	57.7	186	6	Q9BFI2	Q9bfi2 lama glama
42	369	57.7	186	6	Q9BFH8	Q9bfh8 equus cabal
43	369	57.7	186	6	Q9BFH7	Q9bfh7 ceratotheri
44	369	57.7	186	6	Q9BFH6	Q9bfh6 tapirus ind
45	369	57.7	186	6	Q9BFH5	Q9bfh5 felis silve

ALIGNMENTS

RESULT 1
Q9CYL3
ID Q9CYL3 PRELIMINARY; PRT; 153 AA.
AC Q9CYL3;
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Brain derived neurotrophic factor.
GN BDNF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=EMBRYO;
RX MEDLINE=21085660; PubMed=11217851;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA Hayashizaki Y.;
RT "Functional annotation of a full-length mouse cDNA collection.";
RL Nature 409:685-690(2001).
DR EMBL; AK017559; BAB30805.1; -.
DR HSSP; P23560; 1B8M.

```
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   153 AA;  17519 MW;  CA8EB8944CEE5B37 CRC64;

  Query Match             97.3%;  Score 622.5;  DB 11;  Length 153;
  Best Local Similarity   99.2%;  Pred. No. 1.4e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      35 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 94

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      95 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 153


RESULT 2
O97759
ID   O97759      PRELIMINARY;      PRT;   247 AA.
AC   O97759;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Ailurus fulgens (Lesser panda).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Procyonidae; Ailurus.
OX   NCBI_TaxID=9649;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Feng L.;
RT   "Giant Panda (GP) and Lesser Panda (LP) BDNF gene sequences and their
RT   deduced amino acid sequences.";
RL   Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U56639; AAD10843.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   247 AA;  27870 MW;  FE8C62CF1A6C03EE CRC64;

  Query Match             97.3%;  Score 622.5;  DB 6;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 3
Q8VHH4
ID   Q8VHH4      PRELIMINARY;      PRT;   249 AA.
AC   Q8VHH4;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Anorexia BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=B6C3FE-A/A-ANXA/+A;
RA   Kim S.J., Kim C.S., Cha Y.J., Song K.Y., Yeo M.G.;
RT   "Anorexia mouse ORF BDNF.";
RL   Submitted (DEC-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF459642; AAL58475.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   249 AA;  28109 MW;  21CEAEA60A235D97 CRC64;

  Query Match             97.3%;  Score 622.5;  DB 11;  Length 249;
  Best Local Similarity   99.2%;  Pred. No. 2.5e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     131 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 190

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     191 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249


RESULT 4
Q9I8L2
ID   Q9I8L2      PRELIMINARY;      PRT;   177 AA.
AC   Q9I8L2;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   BDNF (Fragment).
OS   Poephila guttata (Zebra finch) (Taeniopygia guttata).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Passeriformes; Estrildidae;
OC   Estrildinae; Taeniopygia.
OX   NCBI_TaxID=59729;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20193595; PubMed=10727739;
RA   Johnson F., Norstrom E., Soderstrom K.;
RT   "Increased expression of endogenous biotin, but not BDNF, in
RT   telencephalic song regions during zebra finch vocal learning.";
RL   Brain Res. Dev. Brain Res. 120:113-123(2000).
DR   EMBL; AF255389; AAF78050.2; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   177 AA;  20273 MW;  BDB9031515BD369D CRC64;

  Query Match             92.6%;  Score 592.5;  DB 13;  Length 177;
  Best Local Similarity   93.3%;  Pred. No. 4.1e-59;
  Matches  111;  Conservative    3;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||| ||||||:||||||||| |||||||||| ||||||||||||||
Db      59 HSDPARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNP 118
```

```
Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||:|||:|||||||||||| ||||||||
Db     119 KGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 177


RESULT 5
Q8QG75
ID   Q8QG75      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG75;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Phrynocephalus hongyuanensis.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Agaminae;
OC   Phrynocephalus.
OX   NCBI_TaxID=171648;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497714; AAM18715.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27792 MW;  7709D3058B7AFA30 CRC64;

  Query Match             90.4%;  Score 578.5;  DB 13;  Length 246;
  Best Local Similarity   91.6%;  Pred. No. 2.3e-57;
  Matches  109;  Conservative    4;  Mismatches    5;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||| ||||||||:||||||||| |||||||||| ||||||||||||||
Db     128 HSDPARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNS 187

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||:|||||||||||||||||:|||:|||||||||||| ||||||||
Db     188 KGYTKEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 246


RESULT 6
Q8QG76
ID   Q8QG76      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG76;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Japalura splendida.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Draconinae;
OC   Japalura.
OX   NCBI_TaxID=118209;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497713; AAM18714.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27883 MW;  47B1A03DA838FD78 CRC64;

  Query Match             89.8%;  Score 574.5;  DB 13;  Length 246;
  Best Local Similarity   90.8%;  Pred. No. 6.6e-57;
  Matches  108;  Conservative    4;  Mismatches    6;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||| ||||| |||||||:||||||||| |||||||||| ||||||||||||||
Db     128 HSDPARRGEFSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNS 187

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||:|||||||||||||||||:|||:|||||||||||| ||||||||
Db     188 KGYTKEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 246


RESULT 7
Q9YH42
ID   Q9YH42      PRELIMINARY;      PRT;   270 AA.
AC   Q9YH42;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor.
GN   BDNF.
OS   Brachydanio rerio (Zebrafish) (Zebra danio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Hashimoto M., Heinrich G.;
RL   Submitted (DEC-1995) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U42489; AAD00016.1; -.
DR   HSSP; P23560; 1B8M.
DR   ZFIN; ZDB-GENE-000412-1; bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   270 AA;  29482 MW;  6BF136101B4E45C0 CRC64;

  Query Match             89.5%;  Score 572.5;  DB 13;  Length 270;
  Best Local Similarity   89.9%;  Pred. No. 1.2e-56;
  Matches  107;  Conservative    7;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||| ||||||||||:|||| |||||:|||| ||||||||||: ||||||||||||||
Db     152 HSDPARWGELSVCDSISQWVTAVDKKTAIDMSGQTVTVLEKVPVTNGQLKQYFYETKCNP 211

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           :|||||||||||||:|||||||||||||||||::||||||||||||| ||||||||
Db     212 LGYTKEGCRGIDKRHYNSQCRTTQSYVRALTMDSKRKIGWRFIRIDTSCVCTLTIKRGR 270


RESULT 8
Q8QG74
ID   Q8QG74      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG74;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Cyclophiops major.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Colubridae; Colubrinae; Cyclophiops.
OX   NCBI_TaxID=192173;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
```

```
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497715; AAM18716.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27773 MW;  BA01780349F37856 CRC64;

  Query Match             87.9%;  Score 562.5;  DB 13;  Length 246;
  Best Local Similarity   89.1%;  Pred. No. 1.5e-55;
  Matches  106;  Conservative    5;  Mismatches    7;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          |||||||||||||| ||||||:|||||||| |||||||| ||||||||||||:
Db    128 HSDPARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCST 187

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          || |||||||||:|||||||||||||||| |:|||:|||||||||||| ||||||||
Db    188 KGYAKEGCRGIDKRYWNSQCRTTQSYVRALTTDNKKRVGWRFIRIDTSCVCTLTIKRGR 246


RESULT 9
Q8QG77
ID   Q8QG77      PRELIMINARY;      PRT;   247 AA.
AC   Q8QG77;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
OS   Tylototriton taliangensis.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae;
OC   Tylototriton.
OX   NCBI_TaxID=129885;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Cloning and sequence analysis of brain derived neurotrophic factor
RT   (BDNF) gene from Sichuan Newt (Tylototriton taliangensis).";
RL   Ying Yung Yu Huan Ching Sheng Wu Hsueh Pao 8:0-0(2002).
DR   EMBL; AF497712; AAM18078.1; -.
SQ   SEQUENCE   247 AA;  27841 MW;  FFCB5F28A7620DE0 CRC64;

  Query Match             86.3%;  Score 552.5;  DB 13;  Length 247;
  Best Local Similarity   88.2%;  Pred. No. 2.1e-54;
  Matches  105;  Conservative    7;  Mismatches    6;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          || |||| |||||||||||||:|||||||| |||||||| :|||||||||| ||
Db    129 HSGPARREELSVCDSISEWVTASDKKTAVDMSGQTVTVLEKVPVPEGQLKQYFYETKRNP 188

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          ||| ||||||||:|||||||||||||:|::||::|||||||||||| ||||||||
Db    189 MGYMKEGCRGIDKRYWNSQCRTTQSYVRALTVDNKKKVGWRFIRIDTSCVCTLTIKRGR 247


RESULT 10
Q9TT22
ID   Q9TT22      PRELIMINARY;      PRT;   101 AA.
AC   Q9TT22;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Hashimoto T., Okuno H., Tokuyama W., Li Y.-X., Miyashita Y.;
RT   "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT   their receptor messenger RNAs in monkey rhinal cortex.";
RL   Neuroscience 0:0-0(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
DR   EMBL; AF208982; AAF24762.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     101    101
SQ   SEQUENCE   101 AA;  11476 MW;  D6A568D497961740 CRC64;

  Query Match             85.0%;  Score 544;  DB 6;  Length 101;
  Best Local Similarity   100.0%;  Pred. No. 6.4e-54;
  Matches  101;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     11 LSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCR 70
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 LSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCR 60

Qy     71 GIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 111
          |||||||||||||||||||||||||||||||||||||||||
Db     61 GIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV 101


RESULT 11
O02792
ID   O02792      PRELIMINARY;      PRT;    85 AA.
AC   O02792;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Notoryctes typhlops (Marsupial mole).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Metatheria; Notoryctemorphia; Notoryctidae; Notoryctes.
OX   NCBI_TaxID=37699;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kullander K., Carlson B., Hallbook F.;
RT   "Molecular phylogeny and evolution of the neurotrophins from
RT   Monotremes and Marsupials.";
RL   Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U93380; AAB58685.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      85     85
SQ   SEQUENCE   85 AA;  9577 MW;  33754EA015314661 CRC64;

  Query Match             70.0%;  Score 448;  DB 6;  Length 85;
  Best Local Similarity   97.6%;  Pred. No. 3.9e-43;
  Matches   83;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;
```

```
Qy      16 SISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCRGIDKR 75
           |||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Db       1 SISEWVTAADKKTAVDMSGGTVTVLEKVPVPKGQLKQYFYETKCNPMGYTKEGCRGIDKR 60

Qy      76 HWNSQCRTTQSYVRALTMDSKKRIG 100
           |||||||||||||||||||||||:|
Db      61 HWNSQCRTTQSYVRALTMDSKKRVG 85


RESULT 12
O13114
ID   O13114      PRELIMINARY;      PRT;    85 AA.
AC   O13114;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Isoodon macrourus (Short-nosed bandicoot).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Metatheria; Peramelemorphia; Peramelidae; Isoodon.
OX   NCBI_TaxID=37698;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kullander K., Carlson B., Hallbook F.;
RT   "Molecular phylogeny and evolution of the neurotrophins from
RT   Monotremes and Marsupials.";
RL   Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U93374; AAB58679.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      85     85
SQ   SEQUENCE   85 AA;  9604 MW;  33754EA01520B661 CRC64;

  Query Match             69.5%;  Score 445;  DB 6;  Length 85;
  Best Local Similarity   96.5%;  Pred. No. 8.4e-43;
  Matches   82;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      16 SISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCRGIDKR 75
           |||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Db       1 SISEWVTAADKKTAVDMSGGTVTVLEKVPVPKGQLKQYFYETKCNPMGYTKEGCRGIDKR 60

Qy      76 HWNSQCRTTQSYVRALTMDSKKRIG 100
           |||||||||||||||||||||||:|||:|
Db      61 HWNSQCRTTQSYVRALTMDNKKRVG 85


RESULT 13
O13122
ID   O13122      PRELIMINARY;      PRT;    85 AA.
AC   O13122;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Tarsipes rostratus (honey possum).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Metatheria; Diprotodontia; Tarsipedidae; Tarsipes.
OX   NCBI_TaxID=38632;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kullander K., Carlson B., Hallbook F.;
RT   "Molecular phylogeny and evolution of the neurotrophins from
RT   Monotremes and Marsupials.";
RL   Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U93375; AAB58680.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      85     85
SQ   SEQUENCE   85 AA;  9604 MW;  33754EA01520B661 CRC64;

  Query Match             69.5%;  Score 445;  DB 6;  Length 85;
  Best Local Similarity   96.5%;  Pred. No. 8.4e-43;
  Matches   82;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      16 SISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCRGIDKR 75
           |||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Db       1 SISEWVTAADKKTAVDMSGGTVTVLEKVPVPKGQLKQYFYETKCNPMGYTKEGCRGIDKR 60

Qy      76 HWNSQCRTTQSYVRALTMDSKKRIG 100
           |||||||||||||||||||||||:|||:|
Db      61 HWNSQCRTTQSYVRALTMDNKKRVG 85


RESULT 14
O02795
ID   O02795      PRELIMINARY;      PRT;    85 AA.
AC   O02795;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Ornithorhynchus anatinus (Duckbill platypus).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Monotremata; Ornithorhynchidae; Ornithorhynchus.
OX   NCBI_TaxID=9258;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kullander K., Carlson B., Hallbook F.;
RT   "Molecular phylogeny and evolution of the neurotrophins from
RT   Monotremes and Marsupials.";
RL   Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U93376; AAB58681.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      85     85
SQ   SEQUENCE   85 AA;  9604 MW;  33754EA01520B661 CRC64;

  Query Match             69.5%;  Score 445;  DB 6;  Length 85;
  Best Local Similarity   96.5%;  Pred. No. 8.4e-43;
  Matches   82;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      16 SISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCRGIDKR 75
           |||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Db       1 SISEWVTAADKKTAVDMSGGTVTVLEKVPVPKGQLKQYFYETKCNPMGYTKEGCRGIDKR 60

Qy      76 HWNSQCRTTQSYVRALTMDSKKRIG 100
           |||||||||||||||||||||||:|||:|
Db      61 HWNSQCRTTQSYVRALTMDNKKRVG 85


RESULT 15
```

```
O02798
ID   O02798      PRELIMINARY;      PRT;    85 AA.
AC   O02798;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor (Fragment).
GN   BDNF.
OS   Petaurus breviceps (Australian sugar glider).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Metatheria; Diprotodontia; Petauridae; Petaurus.
OX   NCBI_TaxID=34899;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kullander K., Carlson B., Hallbook F.;
RT   "Molecular phylogeny and evolution of the neurotrophins from
RT   Monotremes and Marsupials.";
RL   Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U93377; AAB58682.1; -.
DR   HSSP; P23560; 1BND.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER      85     85
SQ   SEQUENCE   85 AA;  9604 MW;  33754EA01520B661 CRC64;

  Query Match             69.5%;  Score 445;  DB 6;  Length 85;
  Best Local Similarity   96.5%;  Pred. No. 8.4e-43;
  Matches   82;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      16 SISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYTKEGCRGIDKR 75
           ||||||||||||||||||||||||||||| |||||||||||||||||||||||||||||
Db       1 SISEWVTAADKKTAVDMSGGTVTVLEKVPVPKGQLKQYFYETKCNPMGYTKEGCRGIDKR 60

Qy      76 HWNSQCRTTQSYVRALTMDSKKRIG 100
           |||||||||||||||||:|||:|
Db      61 HWNSQCRTTQSYVRALTMDNKKRVG 85


Search completed: December  2, 2002, 15:12:02
Job time : 19.415 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 8.23095 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	640	100.0	119	4	US-09-675-503-4	Sequence 4, Appli
2	633	98.9	118	3	US-08-970-865-4	Sequence 4, Appli
3	633	98.9	118	3	US-08-581-662-3	Sequence 3, Appli
4	633	98.9	118	4	US-09-363-573-4	Sequence 4, Appli
5	633	98.9	118	4	US-09-664-295-3	Sequence 3, Appli
6	622.5	97.3	119	1	US-08-440-049-4	Sequence 4, Appli
7	622.5	97.3	119	2	US-08-441-513A-4	Sequence 4, Appli
8	622.5	97.3	119	5	PCT-US95-06918-4	Sequence 4, Appli
9	622.5	97.3	120	2	US-08-502-348-1	Sequence 1, Appli
10	622.5	97.3	120	4	US-09-214-214A-8	Sequence 8, Appli
11	622.5	97.3	247	1	US-08-451-947-3	Sequence 3, Appli
12	622.5	97.3	247	2	US-08-424-826A-3	Sequence 3, Appli
13	622.5	97.3	247	2	US-08-595-043A-77	Sequence 77, Appl
14	622.5	97.3	247	3	US-08-928-694-3	Sequence 3, Appli
15	622.5	97.3	247	5	PCT-US91-06950-3	Sequence 3, Appli
16	622.5	97.3	257	4	US-09-636-368-8	Sequence 8, Appli
17	622.5	97.3	270	4	US-09-636-368-7	Sequence 7, Appli
18	622.5	97.3	271	4	US-09-636-368-10	Sequence 10, Appl
19	619.5	96.8	247	1	US-08-266-080B-3	Sequence 3, Appli
20	619.5	96.8	247	5	PCT-US95-05423-3	Sequence 3, Appli
21	614.5	96.0	119	1	US-07-979-630-2	Sequence 2, Appli
22	614.5	96.0	119	1	US-08-340-131-1	Sequence 1, Appli
23	614.5	96.0	119	5	PCT-US93-11292-2	Sequence 2, Appli
24	610.5	95.4	120	1	US-08-340-131-2	Sequence 2, Appli
25	605.5	94.6	274	4	US-09-636-368-9	Sequence 9, Appli
26	598.5	93.5	120	4	US-09-214-214A-9	Sequence 9, Appli
27	596.5	93.2	120	4	US-09-214-214A-10	Sequence 10, Appl
28	346	54.1	120	4	US-09-675-503-5	Sequence 5, Appli
29	345.5	54.0	119	3	US-08-970-865-5	Sequence 5, Appli
30	345.5	54.0	119	3	US-08-581-662-2	Sequence 2, Appli
31	345.5	54.0	119	4	US-09-363-573-5	Sequence 5, Appli
32	345.5	54.0	119	4	US-09-664-295-2	Sequence 2, Appli
33	344.5	53.8	119	1	US-07-979-630-3	Sequence 3, Appli
34	344.5	53.8	119	1	US-08-440-049-2	Sequence 2, Appli
35	344.5	53.8	119	1	US-08-340-131-3	Sequence 3, Appli
36	344.5	53.8	119	2	US-08-441-513A-2	Sequence 2, Appli
37	344.5	53.8	119	3	US-08-910-691-12	Sequence 12, Appl
38	344.5	53.8	119	4	US-08-845-541B-2	Sequence 2, Appli
39	344.5	53.8	119	4	US-09-066-065A-2	Sequence 2, Appli
40	344.5	53.8	119	5	PCT-US93-11292-3	Sequence 3, Appli
41	344.5	53.8	119	5	PCT-US95-06918-2	Sequence 2, Appli
42	344.5	53.8	119	5	PCT-US95-06918-5	Sequence 5, Appli
43	344.5	53.8	120	1	US-08-340-131-4	Sequence 4, Appli
44	344.5	53.8	120	3	US-08-581-662-32	Sequence 32, Appl
45	344.5	53.8	120	4	US-09-214-214A-1	Sequence 1, Appli

ALIGNMENTS

RESULT 1
US-09-675-503-4
; Sequence 4, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: ISOLATION OF NEUROTROPHINS FROM A
; TITLE OF INVENTION: MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
; TITLE OF INVENTION: USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
; FILE REFERENCE: GENENT.037C2
; CURRENT APPLICATION NUMBER: US/09/675,503
; CURRENT FILING DATE: 2000-09-29
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 4
; LENGTH: 119
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-675-503-4

Query Match 100.0%; Score 640; DB 4; Length 119;
Best Local Similarity 100.0%; Pred. No. 8.1e-65;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCN 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCN 60

Qy      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
```

RESULT 2
US-08-970-865-4
; Sequence 4, Application US/08970865
; Patent No. 6005081
; GENERAL INFORMATION:
; APPLICANT: Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
; TITLE OF INVENTION: Purification of NGF

```
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  118 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-4

  Query Match            98.9%;  Score 633;  DB 3;  Length 118;
  Best Local Similarity  100.0%;  Pred. No. 4.9e-64;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118

RESULT 3
US-08-581-662-3
; Sequence 3, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 3
;   LENGTH: 118
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-3

  Query Match            98.9%;  Score 633;  DB 3;  Length 118;
  Best Local Similarity  100.0%;  Pred. No. 4.9e-64;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118

RESULT 4
US-09-363-573-4
; Sequence 4, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  118 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-4

  Query Match            98.9%;  Score 633;  DB 4;  Length 118;
  Best Local Similarity  100.0%;  Pred. No. 4.9e-64;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118

RESULT 5
US-09-664-295-3
; Sequence 3, Application US/09664295
; Patent No. 6429196
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
```

```
;  FILE REFERENCE: GENENT.051C1
;  CURRENT APPLICATION NUMBER: US/09/664,295
;  CURRENT FILING DATE:  2000-09-18
;  PRIOR APPLICATION NUMBER: US 08/581,662
;  PRIOR FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 37
; SEQ ID NO 3
;   LENGTH: 118
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-664-295-3

  Query Match             98.9%;  Score 633;  DB 4;  Length 118;
  Best Local Similarity   100.0%;  Pred. No. 4.9e-64;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 118


RESULT 6
US-08-440-049-4
; Sequence 4, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-4

  Query Match             97.3%;  Score 622.5;  DB 1;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 7.6e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 7
US-08-441-513A-4
; Sequence 4, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-4

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 7.6e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy      2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy     62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          |||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 8
PCT-US95-06918-4
; Sequence 4, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
```

```
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-4

  Query Match             97.3%;  Score 622.5;  DB 5;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 7.6e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db      61 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 119


RESULT 9
US-08-502-348-1
; Sequence 1, Application US/08502348
; Patent No. 5830857
;  GENERAL INFORMATION:
;    APPLICANT:  Carnahan, Josette F
;    APPLICANT:  Depaulis, Antoine
;    APPLICANT:  Feltz, Paul
;    APPLICANT:  Larmet, Yves
;    APPLICANT:  Marescaux, Christian
;    APPLICANT:  Nawa, Hiroyuki
;    TITLE OF INVENTION:  METHOD OF TREATING EPILEPSY
;    NUMBER OF SEQUENCES:  1
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Amgen Inc.
;      STREET:  1840 Dehavilland Drive
;      CITY:  Thousand Oaks
;      STATE:  California
;      COUNTRY:  US
;      ZIP:  91320-1789
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/502,348
;      FILING DATE:
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Mazza, Richard J.
;      REFERENCE/DOCKET NUMBER:  A-348
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  120 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-502-348-1

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.7e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 10
US-09-214-214A-8
; Sequence 8, Application US/09214214A
; Patent No. 6211150
; GENERAL INFORMATION:
;  APPLICANT:  Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION:  ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE:  A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/214,214A
;  CURRENT FILING DATE:  1998-12-23
;  PRIOR APPLICATION NUMBER:  PCT/US97/12609
;  PRIOR FILING DATE:  1997-07-17
;  PRIOR APPLICATION NUMBER:  US 08/684,353
;  PRIOR FILING DATE:  1996-07-19
;  NUMBER OF SEQ ID NOS:  12
;  SOFTWARE:  PatentIn Ver. 2.1
; SEQ ID NO 8
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-214-214A-8

  Query Match             97.3%;  Score 622.5;  DB 4;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 7.7e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 11
US-08-451-947-3
; Sequence 3, Application US/08451947
; Patent No. 5702906
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
```

```
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/451,947
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  247 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-451-947-3

  Query Match             97.3%;  Score 622.5;  DB 1;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 12
US-08-424-826A-3
; Sequence 3, Application US/08424826A
; Patent No. 5830858
;  GENERAL INFORMATION:
;    APPLICANT:  Rosenthal, Arnon
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  98
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/424,826A
;      FILING DATE:  19-Apr-1995
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240387
;      FILING DATE:  10-May-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  25-SEP-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P1C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  247 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-424-826A-3

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 13
US-08-595-043A-77
; Sequence 77, Application US/08595043A
; Patent No. 5935824
;  GENERAL INFORMATION:
;    APPLICANT:  SGARLATO, GREGORY D.
;    TITLE OF INVENTION:  PROTEIN EXPRESSION SYSTEM
;    NUMBER OF SEQUENCES:  90
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  MEDLEN & CARROLL
;      STREET:  220 MONTGOMERY STREET, SUITE 2200
;      CITY:  SAN FRANCISCO
;      STATE:  CALIFORNIA
;      COUNTRY:  UNITED STATES OF AMERICA
;      ZIP:  94104
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/595,043A
;      FILING DATE:  31-JAN-1996
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  CARROLL, PETER G.
;      REGISTRATION NUMBER:  32,837
;      REFERENCE/DOCKET NUMBER:  SGAR-00371
```

```
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 705-8410
;      TELEFAX:  (415) 397-8338
;  INFORMATION FOR SEQ ID NO:  77:
;    SEQUENCE CHARACTERISTICS:
;     LENGTH: 247 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-595-043A-77

  Query Match             97.3%;  Score 622.5;  DB 2;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 14
US-08-928-694-3
; Sequence 3, Application US/08928694
; Patent No. 6037320
;  GENERAL INFORMATION:
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/928,694
;      FILING DATE:  12-Sep-1997
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/451947
;      FILING DATE:  26-MAY-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P2C1D2C1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  247 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-928-694-3

  Query Match             97.3%;  Score 622.5;  DB 3;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 15
PCT-US91-06950-3
; Sequence 3, Application PC/TUS9106950
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US91/06950
;      FILING DATE:  19910924
;      CLASSIFICATION:  436
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Hensley, Max D.
;      REGISTRATION NUMBER:  27,043
;      REFERENCE/DOCKET NUMBER:  666P1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/266-1994
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  247 amino acids
;      TYPE:  AMINO ACID
;      TOPOLOGY:  linear
PCT-US91-06950-3

  Query Match             97.3%;  Score 622.5;  DB 5;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.9e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247
```

Search completed: December 2, 2002, 15:09:43
Job time : 8.23095 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 4.18523 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-4
Perfect score: 640
Sequence: 1 PHSDPARRGELSVCDSISEW.....GWRFIRIDTSCVTLTIKRGR 119

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	640	100.0	119	12	US-10-072-681-4	Sequence 4, Appli
2	622.5	97.3	120	10	US-09-745-032-8	Sequence 8, Appli
3	622.5	97.3	120	10	US-09-742-600-8	Sequence 8, Appli
4	622.5	97.3	247	8	US-08-450-842-3	Sequence 3, Appli
5	598.5	93.5	120	10	US-09-745-032-9	Sequence 9, Appli
6	598.5	93.5	120	10	US-09-742-600-9	Sequence 9, Appli
7	596.5	93.2	120	10	US-09-745-032-10	Sequence 10, Appl
8	596.5	93.2	120	10	US-09-742-600-10	Sequence 10, Appl
9	589.5	92.1	120	9	US-09-813-398-10	Sequence 10, Appl
10	385	60.2	72	10	US-09-848-664-22	Sequence 22, Appl
11	346	54.1	120	12	US-10-072-681-5	Sequence 5, Appli
12	344.5	53.8	120	10	US-09-745-032-1	Sequence 1, Appli
13	344.5	53.8	120	10	US-09-742-600-1	Sequence 1, Appli
14	344.5	53.8	120	10	US-09-872-090-1	Sequence 1, Appli
15	344.5	53.8	257	8	US-08-450-842-4	Sequence 4, Appli
16	340.5	53.2	119	10	US-09-745-032-6	Sequence 6, Appli
17	340.5	53.2	119	10	US-09-742-600-6	Sequence 6, Appli
18	340.5	53.2	119	10	US-09-872-090-6	Sequence 6, Appli
19	340.5	53.2	120	10	US-09-745-032-3	Sequence 3, Appli
20	340.5	53.2	120	10	US-09-742-600-3	Sequence 3, Appli
21	340.5	53.2	120	10	US-09-872-090-3	Sequence 3, Appli
22	338.5	52.9	130	8	US-08-450-842-47	Sequence 47, Appl
23	338.5	52.9	132	8	US-08-450-842-51	Sequence 51, Appl
24	336	52.5	117	10	US-09-745-032-7	Sequence 7, Appli
25	336	52.5	117	10	US-09-742-600-7	Sequence 7, Appli
26	336	52.5	117	10	US-09-872-090-7	Sequence 7, Appli
27	336	52.5	118	10	US-09-745-032-5	Sequence 5, Appli
28	336	52.5	118	10	US-09-742-600-5	Sequence 5, Appli
29	336	52.5	118	10	US-09-872-090-5	Sequence 5, Appli
30	335.5	52.4	130	8	US-08-450-842-23	Sequence 23, Appl
31	334	52.2	120	9	US-09-813-398-11	Sequence 11, Appl
32	332.5	52.0	130	8	US-08-450-842-22	Sequence 22, Appl
33	332.5	52.0	131	9	US-09-813-398-12	Sequence 12, Appl
34	332.5	52.0	168	8	US-08-450-842-6	Sequence 6, Appli
35	332.5	52.0	210	8	US-08-450-842-2	Sequence 2, Appli
36	330.5	51.6	130	8	US-08-450-842-60	Sequence 60, Appl
37	329.5	51.5	130	8	US-08-450-842-59	Sequence 59, Appl
38	329.5	51.5	130	8	US-08-450-842-61	Sequence 61, Appl
39	328.5	51.3	130	8	US-08-450-842-62	Sequence 62, Appl
40	328.5	51.3	130	8	US-08-450-842-68	Sequence 68, Appl
41	327.5	51.2	130	8	US-08-450-842-63	Sequence 63, Appl
42	327.5	51.2	130	8	US-08-450-842-64	Sequence 64, Appl
43	327.5	51.2	130	8	US-08-450-842-69	Sequence 69, Appl
44	326.5	51.0	130	8	US-08-450-842-20	Sequence 20, Appl
45	326.5	51.0	130	8	US-08-450-842-65	Sequence 65, Appl

ALIGNMENTS

```
RESULT 1
US-10-072-681-4
; Sequence 4, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 4
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-10-072-681-4

  Query Match            100.0%;  Score 640;  DB 12;  Length 119;
  Best Local Similarity  100.0%;  Pred. No. 5.7e-65;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCN 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCN 60

Qy      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVTLTIKRGR 119
```

```
RESULT 2
US-09-745-032-8
; Sequence 8, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 8
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-8

  Query Match             97.3%;  Score 622.5;  DB 10;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 5.3e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 3
US-09-742-600-8
; Sequence 8, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 8
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-8

  Query Match             97.3%;  Score 622.5;  DB 10;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 5.3e-63;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 4
US-08-450-842-3
; Sequence 3, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  247 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-3

  Query Match             97.3%;  Score 622.5;  DB 8;  Length 247;
  Best Local Similarity   99.2%;  Pred. No. 1.3e-62;
  Matches  118;  Conservative    0;  Mismatches    0;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     129 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 188

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     189 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 5
US-09-745-032-9
; Sequence 9, Application US/09745032
; Patent No. US20010027179A1
```

```
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 9
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-9

  Query Match             93.5%;  Score 598.5;  DB 10;  Length 120;
  Best Local Similarity   95.8%;  Pred. No. 2.6e-60;
  Matches  114;  Conservative    0;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||| ||||||| |||||||||||||||||||| | |||||||||||| ||||||||
Db      62 MGYTDEGCRGIDDRHWNSQCRTTQSYVRALTMDSAKAIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 6
US-09-742-600-9
; Sequence 9, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 9
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-9

  Query Match             93.5%;  Score 598.5;  DB 10;  Length 120;
  Best Local Similarity   95.8%;  Pred. No. 2.6e-60;
  Matches  114;  Conservative    0;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||| ||||||| |||||||||||||||||||| | |||||||||||| ||||||||
Db      62 MGYTDEGCRGIDDRHWNSQCRTTQSYVRALTMDSAKAIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 7
US-09-745-032-10
; Sequence 10, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 10
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-10

  Query Match             93.2%;  Score 596.5;  DB 10;  Length 120;
  Best Local Similarity   95.8%;  Pred. No. 4.4e-60;
  Matches  114;  Conservative    0;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNE 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||| ||||||| |||||||||||||||||||| |||||||||||||| ||||||||
Db      62 MGYTDEGCRGIDDRHWNSQCRTTQSYVRALTMDSAKRIGWRFIRIDTSCVCTLTIKRGR 120


RESULT 8
US-09-742-600-10
; Sequence 10, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 10
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-10

  Query Match             93.2%;  Score 596.5;  DB 10;  Length 120;
  Best Local Similarity   95.8%;  Pred. No. 4.4e-60;
  Matches  114;  Conservative    0;  Mismatches    4;  Indels    1;  Gaps    1;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNE 61

Qy      62 MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||| ||||||| |||||||||||||||||||| |||||||||||||| ||||||||
Db      62 MGYTDEGCRGIDDRHWNSQCRTTQSYVRALTMDSAKRIGWRFIRIDTSCVCTLTIKRGR 120
```

```
RESULT 9
US-09-813-398-10
; Sequence 10, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
;  APPLICANT: Bruce D. Weintraub
;  APPLICANT:  Mariusz W. Szkudlinski
;  APPLICANT:  University of Maryland
;  TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
;  FILE REFERENCE: UOFMD.003C1
;  CURRENT APPLICATION NUMBER: US/09/813,398
;  CURRENT FILING DATE:  2001-03-20
;  PRIOR APPLICATION NUMBER: PCT/US99/05908
;  PRIOR FILING DATE: 1999-03-19
;  PRIOR APPLICATION NUMBER: PCT/US98/19772
;  PRIOR FILING DATE: 1998-09-22
;  NUMBER OF SEQ ID NOS: 41
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 10
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: HOMO SAPIEN
US-09-813-398-10

  Query Match             92.1%;  Score 589.5;  DB 9;  Length 120;
  Best Local Similarity   93.3%;  Pred. No. 2.7e-59;
  Matches  112;  Conservative    1;  Mismatches    6;  Indels    1;  Gaps    1;

Qy       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCN 60
           ||||||||||||||||||||||||||||||||||||||||||||   |||||||||||||||
Db       1 PHSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVSPVKGQLKQYFYETKCN 60

Qy      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
           |||||||||||||||||||||||||||||:  ||||||||||||||||  |||||||
Db      61 PMGYTKEGCRGIDKRHWNSQCRTTQSYVRAMLTDSKKRIGWRFIRIDTSCVCILTIKRGR 120


RESULT 10
US-09-848-664-22
; Sequence 22, Application US/09848664
; Patent No. US20020146414A1
; GENERAL INFORMATION:
;  APPLICANT: Sakiyama-Elbert, Shelly E.
;  APPLICANT:  Hubbell, Jeffrey A.
;  TITLE OF INVENTION: Controlled Release of No. US20020146414A1-Heparin Binding Growth
;  TITLE OF INVENTION:  Factors from Heparin Containing Matrices
;  FILE REFERENCE: ETH 108
;  CURRENT APPLICATION NUMBER: US/09/848,664
;  CURRENT FILING DATE:  2001-05-03
;  PRIOR APPLICATION NUMBER: 09/298,084
;  PRIOR FILING DATE: 1999-04-22
;  NUMBER OF SEQ ID NOS: 31
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 22
;   LENGTH: 72
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-848-664-22

  Query Match             60.2%;  Score 385;  DB 10;  Length 72;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-36;
  Matches   72;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 HSDPARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNP 60

Qy      62 MGYTKEGCRGID 73
           ||||||||||||
Db      61 MGYTKEGCRGID 72


RESULT 11
US-10-072-681-5
; Sequence 5, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-10-072-681-5

  Query Match             54.1%;  Score 346;  DB 12;  Length 120;
  Best Local Similarity   55.4%;  Pred. No. 5.6e-32;
  Matches   67;  Conservative   21;  Mismatches   29;  Indels    4;  Gaps    3;

Qy       1 PHSD-PARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKC 59
           |:::  : ||| ||||| | |||  || :|:|: |  |||| ::      :||||||:|
Db       1 PYAEHKSHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRC 58

Qy      60 NPMGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVT-LTIKRG 118
              | |||||| :|||||:|:|:|:|||||| :: | :|||:||||||||: |: | |
Db      59 KEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIG 118

Qy     119 R 119
           |
Db     119 R 119


RESULT 12
US-09-745-032-1
; Sequence 1, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-1
```

```
  Query Match           53.8%;  Score 344.5;  DB 10;  Length 120;
  Best Local Similarity  57.4%;  Pred. No. 8.3e-32;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy      6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
          : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db      7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64

Qy     66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          | |||||| :||||||:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 13
US-09-742-600-1
; Sequence 1, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-1

  Query Match           53.8%;  Score 344.5;  DB 10;  Length 120;
  Best Local Similarity  57.4%;  Pred. No. 8.3e-32;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy      6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
          : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db      7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64

Qy     66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          | |||||| :||||||:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 14
US-09-872-090-1
; Sequence 1, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-872-090-1

  Query Match           53.8%;  Score 344.5;  DB 10;  Length 120;
  Best Local Similarity  57.4%;  Pred. No. 8.3e-32;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy      6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
          : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db      7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64

Qy     66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          | |||||| :||||||:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 119


RESULT 15
US-08-450-842-4
; Sequence 4, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  257 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-4

  Query Match           53.8%;  Score 344.5;  DB 8;  Length 257;
  Best Local Similarity  57.4%;  Pred. No. 2.1e-31;
  Matches   66;  Conservative   17;  Mismatches   29;  Indels    3;  Gaps    2;

Qy      6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 65
```

```
          : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db    144 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 201

Qy     66 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCV-TLTIKRGR 119
          | |||||| :|||||||:|:|:|||||| :: | :|||:||||||||  |: | ||
Db    202 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGR 256


Search completed: December  2, 2002, 15:14:34
Job time : 4.18523 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 23.9156 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	646	98.9	119	19	AAW48889	Human neurotrophin
2	646	98.9	119	21	AAB29113	Human neutrophin-3
3	646	98.9	281	12	AAR11359	Neurotrophin-3. H
4	646	98.9	281	14	AAR37800	Human NT-3. Homo
5	641	98.2	119	13	AAR29495	NT-3, mouse. Mus
6	641	98.2	119	15	AAR54086	Neurotrophin-3. R
7	641	98.2	119	20	AAW81118	Neurotrophin-3 wil
8	641	98.2	119	22	AAG64995	Nerve growth facto
9	641	98.2	119	22	AAB35946	NT-3 amino acid se
10	641	98.2	120	17	AAW29392	Conjugate of neuro
11	641	98.2	120	18	AAW10014	Human neurotrophin
12	641	98.2	120	21	AAB10455	Human R-metHuNT pr
13	641	98.2	120	22	AAE05868	Human recombinant
14	641	98.2	136	12	AAR11306	Nerve Growth Facto
15	641	98.2	240	13	AAR26273	NGF2/NT-3 in pTB13
16	641	98.2	240	14	AAR43937	Sequence of pro re
17	641	98.2	240	15	AAR56451	Human NGF-2/NT-3 e
18	641	98.2	257	12	AAR14032	Human NGF3. Homo
19	641	98.2	257	13	AAR26272	NGF2/NT-3 in pTB13
20	641	98.2	257	14	AAR43936	Sequence of pro re
21	641	98.2	257	16	AAR85078	Human neurotrophin
22	641	98.2	257	20	AAY06594	Neurotrophin-3 (NT
23	641	98.2	257	22	AAB66927	Human NF. Homo sa
24	641	98.2	257	23	AAE20262	Human neurotrophin
25	641	98.2	257	23	AAM50847	Human recombinant
26	641	98.2	258	11	AAR06648	Novel polypeptide
27	641	98.2	258	12	AAR11357	Neurotrophin-3. M
28	641	98.2	258	22	AAB66928	Rat NF. Rattus sp
29	641	98.2	258	23	ABB57323	Mouse ischaemic co
30	641	98.2	271	11	AAR06649	Novel polypeptide
31	638	97.7	271	12	AAR11307	Nerve Growth Facto
32	634	97.1	136	11	AAR06650	Novel polypeptide
33	634	97.1	257	15	AAR63067	Human NGF-2/NT-3 e
34	634	97.1	281	14	AAR37801	Rat NT-3. Rattus
35	633	96.9	119	17	AAR90530	Pantropic neurotro
36	629	96.3	119	19	AAW52302	Mutant huNT-3 1-11
37	629	96.3	119	22	AAE05871	Human NT-3(1-119)R
38	629	96.3	120	19	AAW52300	Mutant met-huNT-3
39	629	96.3	120	22	AAE05869	Human r-metHuNT-3
40	619	94.8	117	19	AAW52303	Mutant huNT-3 1-11
41	619	94.8	117	22	AAE05872	Human NT-3(1-117)R
42	619	94.8	118	19	AAW52301	Mutant met-huNT-3
43	619	94.8	118	22	AAE05870	Human r-metHuNT-3
44	613	93.9	120	21	AAB29142	N-terminal of neut
45	602	92.2	119	21	AAY92008	Human neurotrophin

ALIGNMENTS

RESULT 1
AAW48889
ID AAW48889 standard; Protein; 119 AA.
XX
AC AAW48889;
XX
DT 12-OCT-1998 (first entry)
XX
DE Human neurotrophin-3.
XX
KW Neurotrophin-3; NT-3; human; purification;
KW hydrophobic interaction chromatography.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Region 57..67
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
FT Region 108..110
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
XX
PN WO9821234-A2.
XX
PD 22-MAY-1998.
XX
PF 14-NOV-1997; 97WO-US21068.
XX
PR 29-MAY-1997; 97US-0047855.
PR 15-NOV-1996; 96US-0030838.
XX
PA (GETH) GENENTECH INC.

XX
PI Beck JT, Burton LE, Schmelzer CH;
XX
DR WPI; 1998-322333/28.
XX
PT Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT variant(s) - using hydrophobic interaction chromatography,
PT optionally in combination with high performance cation exchange
PT chromatography
XX
PS Disclosure; Page 37-38; 59pp; English.
XX
CC This polypeptide comprises human neurotrophin-3 (NT-3) mature
CC polypeptide. Methods are provided for large-scale purification of
CC neurotrophins, including mature NT-3, suitable for clinical use. A
CC claimed method comprises: (1) separating the neurotrophin from the
CC other proteins using a hydrophobic interaction chromatography resin
CC (HICR); and optionally (2) separating the neurotrophin from a
CC chemical variant by high performance cation exchange chromatography
CC (HPCEC). The processes can also be used for purification of e.g.
CC human nerve growth factor (NGF) (see AAW48886), mouse NGF (see
CC AAW48887), brain-derived neurotrophic factor (see AAW48888) and
CC neurotrophin-4/5 (see AAW48890). The processes allow separation of
CC neurotrophins from various undesirable misprocessed, misfolded,
CC size, glycosylated or charge forms. They allow selective
CC separation from variants and other molecules, and from other
CC polypeptides with high pI. The processes are applicable to
CC starting materials from various sources, including fermentation
CC broths or lysed bacterial or mammalian cells.
XX
SQ Sequence 119 AA;

Query Match 98.9%; Score 646; DB 19; Length 119;
Best Local Similarity 100.0%; Pred. No. 1.3e-60;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy 62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119

RESULT 2
AAB29113
ID AAB29113 standard; Protein; 119 AA.
XX
AC AAB29113;
XX
DT 02-FEB-2001 (first entry)
XX
DE Human neutrophin-3.
XX
KW Neutrophin; trkB; trkC; ototoxicity-related balance impairment;
KW Meniere's syndrome; myringitis; otitis media;
KW acute vestibular neuronitis; herpes zoster oticus; labyrinthitis;
KW middle; labyrinthe tumour; petrositis; otosclerosis; bacteria.
XX
OS Homo sapiens.
XX
PN US6121235-A.
XX
PD 19-SEP-2000.
XX
PF 29-DEC-1995; 95US-0581662.
XX
PR 29-DEC-1995; 95US-0581662.
XX
PA (GETH) GENENTECH INC.
XX
PI Gao W;
XX
DR WPI; 2000-618200/59.
XX
PT Treating ototoxin-induced neuronal-related balance impairment and
PT promoting vestibular ganglion neuron survival prior to, upon or after
PT exposure to an ototoxin, comprises administering a trkB or trkC agonist
PT -
XX
PS Disclosure; Column 47-50; 40pp; English.
XX
CC The present invention relates to treating ototoxin-induced
CC neuronal-related balance impairment in a mammal by administering a
CC trkB or trkC agonist, particularly neurotrophin-4/5 (NT-4/5).
CC Ototoxicity-related balance impairments include Meniere's syndrome,
CC myringitis, otitis media, acute vestibular neuronitis, herpes zoster
CC oticus, labyrinthitis, middle or labyrinthe tumours, petrositis and
CC otosclerosis. NT-4/5 may also be used to treat diseases
CC induced by gram positive, gram negative and acid-fast bacteria. The
CC present sequence is a protein used in the invention.
XX
SQ Sequence 119 AA;

Query Match 98.9%; Score 646; DB 21; Length 119;
Best Local Similarity 100.0%; Pred. No. 1.3e-60;
Matches 119; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy 62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119

RESULT 3
AAR11359
ID AAR11359 standard; Protein; 281 AA.
XX
AC AAR11359;
XX
DT 31-MAY-1991 (first entry)
XX
DE Neurotrophin-3.
XX
KW NT-3; nerve growth factor; NGF; brain derived neurotrophic factor;
KW BDNF; Alzheimers disease; Parkinsonism; central nervous system; CNS;
KW neuropathy.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Protein 25..281
FT /label= prepro NT3
FT Protein 163..281
FT /label= mature NT3
XX
PN WO9103569-A.
XX
PD 21-MAR-1991.
XX
PF 29-AUG-1990; 90WO-US04916.
XX
PR 20-AUG-1990; 90US-0570189.
PR 30-AUG-1989; 89US-0400591.
PR 07-MAR-1990; 90US-0490004.
XX
PA (PLAC) MAX PLANCK GES WISSENSCH.
PA (REGE-) REGENERON PHARM INC.
XX
PI Hohn A, Leibrock J, Bailey K, Barde YA, Thoenen H;
PI Maisonpierre PC, Furthme, Lindsay RM;
XX

```
DR   WPI; 1991-102084/14.
DR   N-PSDB; AAQ11147.
XX
PT   New neurotrophin-3, neurotrophic factor - related to nerve
PT   growth- and brain derived neurotrophic-factor, for diagnosis and
PT   treatment of neurological disorders.
XX
PS   Claim 26; Fig 11; 149pp; English.
XX
CC   NT-3 is a new neurotrophic factor and is a member of the NGF/BDGF
CC   gene family. The sequence was deduced from the DNA sequence of a
CC   clone isolated from a human placental genomic DNA library using
CC   probes prepd. from sequences of NGF and BDGF. The clone contg. the
CC   longest insert was designated phihN3(G1).
CC   See also AAR11357 and R111358.
XX
SQ   Sequence   281 AA;

  Query Match             98.9%;  Score 646;  DB 12;  Length 281;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-60;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     163 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 222

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     223 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 281


RESULT 4
AAR37800
ID   AAR37800 standard; Protein; 281 AA.
XX
AC   AAR37800;
XX
DT   29-SEP-1993  (first entry)
XX
DE   Human NT-3.
XX
KW   Chimeric; human; prepro; NGF; brain-derived neurotrophic factor; rat;
KW   BDNF; chimera; fusion; nerve growth factor; peripheral; precursor;
KW   central; nervous system; dorsal root ganglion neuron; NT-3; homology;
KW   neurotrophin; nodose ganglion.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Region          25..162
FT                   /note= "Human NT-3 prepro region"
FT   Protein         163..281
FT                   /note= "Human NT-3 mature protein"
XX
PN   WO9310150-A.
XX
PD   27-MAY-1993.
XX
PF   13-NOV-1992;   92WO-US09792.
XX
PR   14-NOV-1991;   91US-0792492.
XX
PA   (AMGE-) AMGEN.
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Gies D,  Hu SS,  Ip N,  Squinto SP,  Yancopoulos GD;
XX
DR   WPI; 1993-182492/22.
DR   N-PSDB; AAQ42572.
XX
PT   Eukaryotic expression of neurotrophins - using prepro region of a
PT   different neurotrophin for more efficient post-translational
PT   processing
XX
PS   Disclosure; Fig 5; 80pp; English.
XX
CC   The sequences given in AAR37800-01 represent human and rat
CC   neurotrophin-3 (NT-3) respectively.  NT-3 has a similar structure to
CC   brain derived neurotrophic factor (BDNF) and nerve growth factor (NGF).
CC   A putative signal sequence of 18 amino acids is followed by a prosequence
CC   of 121 amino acids.  The 6 Cys residues present in NGF and BDNF are
CC   conserved in NT-3 and are thought to be involved in the formation of
CC   disulphide bridges.  A high degree of homology is noted between rat and
CC   human NT-3 within the region encoding the mature protein.  The amino
CC   acid sequences of the mature proteins appear absolutely identical. NT-3
CC   is capable of promoting survival and neurite outgrowth of dissociated
CC   dorsal root ganglion neurons in culture.  NT-3 is observed to promote
CC   neurite outgrowth from both nodose ganglion but not sympathetic
CC   ganglion, and NGF promoted outgrowth from sympathetic ganglion but
CC   not nodose explants.  Therefore NT-3 appears to have a broader
CC   specificity of action than either BDNF or NGF.
XX
SQ   Sequence   281 AA;

  Query Match             98.9%;  Score 646;  DB 14;  Length 281;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-60;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     163 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 222

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     223 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 281


RESULT 5
AAR29495
ID   AAR29495 standard; Protein; 119 AA.
XX
AC   AAR29495;
XX
DT   22-APR-1993  (first entry)
XX
DE   NT-3, mouse.
XX
KW   Neurotrophin; NT; nerve growth factor; NGF;
KW   brain-derived neurotrophic factor; BDNF.
XX
OS   Mus musculus.
XX
PN   WO9220365-A.
XX
PD   26-NOV-1992.
XX
PF   20-MAY-1992;   92WO-US04266.
XX
PR   21-MAY-1991;   91US-0703450.
PR   12-JUL-1991;   91US-0729253.
PR   23-JUL-1991;   91US-0734422.
PR   28-AUG-1991;   91US-0751356.
PR   20-SEP-1991;   91US-0762674.
PR   14-NOV-1991;   91US-0791924.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Hallbook F,  Ibanez Moliner CF,  Persson HB,  Yancopoulos GD;
XX
DR   WPI; 1992-415468/50.
XX
PT   Use of neurotrophin-4 for promoting growth and survival of nerve
PT   cells - useful in treating neurological, fertility and
PT   immunological disorders and in diagnosis
XX
PS   Disclosure; Page 106-107 + Fig 4B; 180pp; English.
```

```
XX
CC   A comparison of the mature NT-4 protein (Xenopus) to the mature
CC   NGF, BDNF, and NT-3 proteins from mouse revealed 51%, 60% and 58%
CC   amino acid identity respectively.  See sequences AAR29491 and
CC   AAR29493-95.
XX
SQ   Sequence   119 AA;

  Query Match            98.2%;  Score 641;  DB 13;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 6
AAR54086
ID   AAR54086 standard; protein; 119 AA.
XX
AC   AAR54086;
XX
DT   10-NOV-1994  (first entry)
XX
DE   Neurotrophin-3.
XX
KW   Nerve growth factor; NGF; chimeric neurotrophin; neurotrophic factor;
KW   brain-derived neurotrophic factor; BDNF; neurotrophin-3; NF-3;
KW   TrkA; TrkB; TrC; receptor; neurological disorder;
KW   Parkinson disease; Alzheimer disease.
XX
OS   Rattus sp.
XX
PN   WO9412539-A.
XX
PD   09-JUN-1994.
XX
PF   19-NOV-1993;   93WO-US11292.
XX
PR   20-NOV-1992;   92US-0979630.
XX
PA   (MCIN/) MCINTYRE K R.
XX
PI   Ibanez CFM,  Persson HB;
XX
DR   WPI; 1994-200202/24.
XX
PT   New chimeric neurotrophic factors and DNA - used to develop
PT   prods. for use in the treatment and diagnosis of neurological
PT   disorders
XX
PS   Disclosure; Page 50; 79pp; English.
XX
CC   Sequences are provided for rat nerve growth factor (AAR54084), rat
CC   brain-derived neurotrophic factor (AAR54085) and rat neurotrophin-3
CC   (AAR54086).  Chimeric neurotrophins capable of binding TrkA, TrkB and
CC   TrC are obtained by substituting amino acids 3-9, 28-37, 40-49,
CC   61-66, 81-88, 94-98 or 95-97 of a neurotrophin with corresponding
CC   amino acids from NGF, BDNF or NT-3.  Recombinant chimeric
CC   neurotrophins are used to treat e.g. Alzheimer disease and
CC   Parkinson disease.
XX
SQ   Sequence   119 AA;

  Query Match            98.2%;  Score 641;  DB 15;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 7
AAW81118
ID   AAW81118 standard; protein; 119 AA.
XX
AC   AAW81118;
XX
DT   01-MAR-1999  (first entry)
XX
DE   Neurotrophin-3 wild type.
XX
KW   Nerve growth factor; trkC; neuron; neural disease; animal feed;
KW   neurotrophin assay; nerve cell culture media; neurotrophic factor; NT-3;
KW   trkA; trkB.
XX
OS   Homo sapiens.
XX
PN   WO9849308-A1.
XX
PD   05-NOV-1998.
XX
PF   23-APR-1998;   98WO-US08242.
XX
PR   29-APR-1997;   97US-0841045.
PR   25-APR-1997;   97US-0845541.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Presta LG,  Urfer R,  Winslow JW;
XX
DR   WPI; 1999-009429/01.
XX
PT   New variants of nerve growth factor able to bind trkC - contain
PT   specified mutations and have multiple neurotrophic activities in a
PT   single molecule, used for treating, e.g. peripheral neuropathy
XX
PS   Example 1; Page 33; 53pp; English.
XX
CC   Neurotrophin-3 was used in the production of new variants of nerve growth
CC   factor (NGF) with substitutions at amino acid positions: G23 and H84, and
CC   one or both of V18 and V20, so that it acquires the ability to bind trkC.
CC   The variants can be used to promote development, maintenance and
CC   regeneration of neurons in vivo or in vitro, so can be used to treat a
CC   wide range of neural diseases, e.g. Alzheimer's, Parkinson's,
CC   Huntington's and Meniere's diseases; stroke; amyotrophic lateral
CC   sclerosis; epilepsy; Down's syndrome; nerve deafness; Bell's palsy, or
CC   specifically, peripheral neuropathy.  They are also used as cognitive
CC   enhancers and can also be used for diagnosis; in animal feeds; as
CC   standards for neurotrophin assays; as additives for nerve cell culture
CC   media, and for generation of specific antibodies.  By introducing trkC
CC   binding/signal inducing activity, the variants acquire the activity of
CC   neurotrophic factor NT-3 while optionally retaining ability to bind trkA
CC   and/or B and therefore provide several activities in a single molecule,
CC   with more predictable pharmacokinetic and other properties than a mixture
CC   of agents each with a single activity, and better pan-neurotrophic
CC   activity than known compounds.
XX
SQ   Sequence   119 AA;

  Query Match            98.2%;  Score 641;  DB 20;  Length 119;
  Best Local Similarity  99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
```

```
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 8
AAG64995
ID   AAG64995 standard; protein; 119 AA.
XX
AC   AAG64995;
XX
DT   25-SEP-2001  (first entry)
XX
DE   Nerve growth factor variant related protein SEQ ID NO: 2.
XX
KW   Nerve growth factor; NGF; trkC-binding activity; trkA; trkB; neuropathy;
KW   neuronal disorder; neurotrophin; variant; mutant; mutein; Bell's palsy;
KW   amyotrophic lateral sclerosis; paralysis; neurodegenerative disease;
KW   Parkinson's disease; Alzheimer's disease; multiple sclerosis.
XX
OS   Unidentified.
XX
PN   US2001012625-A1.
XX
PD   09-AUG-2001.
XX
PF   24-APR-1998;   98US-0066065.
XX
PR   25-APR-1997;   97US-0044918.
XX
PA   (PRES/) PRESTA L G.
PA   (URFE/) URFER R.
PA   (WINS/) WINSLOW J W.
XX
PI   Presta LG,  Urfer R,  Winslow JW;
XX
DR   WPI; 2001-464388/50.
XX
PT   Nerve growth factor variants which have trkC-binding activity and
PT   trkC-signal inducing activity, useful for treating a neural disorder in
PT   a mammal such as peripheral neuropathy (e.g. diabetic peripheral
PT   neuropathy) -
XX
PS   Disclosure; Page 19-20; 34pp; English.
XX
CC   The present invention provides a number of nerve growth factor (NGF)
CC   variants with trkC-binding activity and trkC-signal inducing activity.
CC   They may also be capable of binding to trkA and trkB. The variants are
CC   useful in the treatment of neuronal disorders, including peripheral
CC   neuropathy and motor-neurone disorders, such as amyotrophic lateral
CC   sclerosis, Bell's palsy, and various conditions involving spinal muscular
CC   atrophy, or paralysis. They are also useful for treating other human
CC   neurodegenerative disorders, such as Alzheimer's disease, Parkinson's
CC   disease, epilepsy, multiple sclerosis, Huntington's disease, Down's
CC   Syndrome, nerve deafness, Meniere's disease and other conditions
CC   characterized by necrosis or loss of neurones, whether central,
CC   peripheral, or motor neurons.
XX
SQ   Sequence   119 AA;

  Query Match             98.2%;  Score 641;  DB 22;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 9
AAB35946
ID   AAB35946 standard; protein; 119 AA.
XX
AC   AAB35946;
XX
DT   26-FEB-2001  (first entry)
XX
DE   NT-3 amino acid sequence.
XX
KW   Heparin binding; vascular graft; matrix; cell adhesion; growth factor;
KW   wound healing; dermal wound; wound healing; NT-3.
XX
OS   Unidentified.
XX
PN   WO200064481-A1.
XX
PD   02-NOV-2000.
XX
PF   22-APR-1999;   99WO-IB00800.
XX
PR   22-APR-1999;   99WO-IB00800.
XX
PA   (ETHZ-) ETH ZURICH & UNIV ZURICH.
XX
PI   Sakiyama SE,  Hubbell JA;
XX
DR   WPI; 2001-024627/03.
XX
PT   Matrix for controlled release of growth factor for wound healing, has
PT   substrate that attaches heparin binding peptide, protein growth factor
PT   that bind heparin with low affinity, and heparin or heparin-like
PT   polymer -
XX
PS   Example 5; Page 21; 48pp; English.
XX
CC   This invention relates to a matrix comprising a substrate capable of
CC   providing attachment of a heparin binding peptide (HBP), a peptide
CC   comprising a binding domain which binds heparin with high affinity,
CC   heparin or heparin-like polymer, and a protein growth factor or peptide
CC   fragment which has a domain that binds heparin with low affinity.
CC   Included in the invention is a vascular graft comprising the matrix,
CC   which is capable of supporting cell adhesion. The matrix is used for
CC   delivering low heparin binding affinity growth factor proteins or
CC   peptides in a controlled manner suitable for wound healing. The matrix
CC   can be used in an article for treating dermal wounds, and in an
CC   implantable sterilized composition capable of supporting cell adhesion.
CC   The present sequence represents a growth factor protein. The protein is
CC   used in an example illustrating that non-heparin-binding growth factors
CC   can be released in a controlled manner from heparin-based drug delivery
CC   systems based on their low affinity for heparin.
XX
SQ   Sequence   119 AA;

  Query Match             98.2%;  Score 641;  DB 22;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 10
AAW29392
ID   AAW29392 standard; protein; 120 AA.
XX
```

```
AC   AAW29392;
XX
DT   20-FEB-1998  (first entry)
XX
DE   Conjugate of neurotrophin-3 with polyethylene glycol.
XX
KW   Brain derived growth factor conjugate; BDNF; polyethylene glycol;
KW   water-soluble polymer; neurotrophin-3; NT-3; methoxypolyethylene glycol;
KW   trophic factor; neurodegenerative disease; Parkinson's disease;
KW   amyotrophic lateral sclerosis; Huntington's disease;
KW   retinal degeneration; peripheral neuropathies; Alzheimer's disease.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /note= "optionally absent"
FT   Modified-site   120
FT                   /note= "alpha amino group of Thr modified with
FT                          methoxypolyethylene glycol"
XX
PN   WO9615146-A1.
XX
PD   23-MAY-1996.
XX
PF   13-NOV-1995;   95WO-US14658.
XX
PR   14-NOV-1994;   94US-0340131.
XX
PA   (AMGE-) AMGEN INC.
XX
PI   Kinstler OF,  Yan Q;
XX
DR   WPI; 1996-259779/26.
XX
PT   Conjugates of brain derived growth factor or neurotrophin-3 with
PT   water soluble polymer  - having improved migration through brain
PT   tissue compared with the free peptide, useful e.g. for promoting
PT   survival and maintenance of neurons
XX
PS   Claim 2; Pages 36-7; 54pp; English.
XX
CC   This sequence represents a new conjugate of neurotrophin-3 (NT-3)
CC   and methoxypolyethylene glycol, a water soluble polymer. The modification
CC   may be at the N-terminal alpha-amino group of NT-3 or on one or several
CC   of the lysine epsilon-amino acid groups of NT-3. These derivatives, and
CC   similar derivatives of brain derived growth factor (BDGF) have the
CC   same uses as the trophic factors BDNF and NT-3. They are useful for
CC   promoting the survival and maintenance of neurons in vitro and in vivo,
CC   and for treating neurodegenerative diseases, e.g. Parkinson's disease,
CC   amyotrophic lateral sclerosis, Huntington's disease, retinal
CC   degeneration, peripheral neuropathies or Alzheimer's disease. Use of the
CC   derivatives improves migration of BDNF or NT-3 through brain tissue,
CC   resulting in easier delivery to targets within the brain.
XX
SQ   Sequence   120 AA;

  Query Match             98.2%;  Score 641;  DB 17;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 11
AAW10014
ID   AAW10014 standard; protein; 120 AA.
XX
AC   AAW10014;
XX
DT   15-SEP-1997  (first entry)
XX
DE   Human neurotrophin-3.
XX
KW   NT-3; neurotrophin 3; active; refolded; differentiation; research;
KW   expression; protein induction; enzyme expression.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Disulfide-bond  15..80
FT   Disulfide-bond  58..109
FT   Disulfide-bond  68..111
XX
PN   JP09121886-A.
XX
PD   13-MAY-1997.
XX
PF   22-AUG-1996;   96JP-0220963.
XX
PR   25-AUG-1995;   95JP-0217032.
XX
PA   (TAKE ) TAKEDA CHEM IND LTD.
XX
DR   WPI; 1997-314237/29.
XX
PT   Preparation of active correctly folded neurotrophin-3 - which can be
PT   used in cell differentiation, and protein expression research
XX
PS   Disclosure; Fig 1; 15pp; Japanese.
XX
CC   This sequence is human neurotrophin 3 (NT-3). Active NT-3 is produced by
CC   the method of the invention, which comprises transforming a prokaryotic
CC   host cell with an NT-3 gene to express the NT-3, and then NT-3 produced
CC   is refolded correctly in a redox buffer. The active NT-3 produced by the
CC   method can be used as a reagent for research on the differentiation of
CC   cells, genetic expression and induction of protein and enzyme expression.
XX
SQ   Sequence   120 AA;

  Query Match             98.2%;  Score 641;  DB 18;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 12
AAB10455
ID   AAB10455 standard; protein; 120 AA.
XX
AC   AAB10455;
XX
DT   01-DEC-2000  (first entry)
XX
DE   Human R-metHuNT protein.
XX
KW   Human; R-metHuNT; gastrointestinal hypomotility; constipation; diarrhea;
KW   trkC neurotrophin-3 receptor; surgery; neuropathy; Parkinson's disease;
KW   multiple sclerosis; irritable bowel syndrome; spinal cord injury;
KW   paraplegia; quadriplegia; antidiarrheic; laxative.
XX
OS   Homo sapiens.
OS   Synthetic.
```

```
XX
PN   WO200041719-A1.
XX
PD   20-JUL-2000.
XX
PF   11-JAN-2000; 2000WO-US00682.
XX
PR   15-JAN-1999;   99US-0232171.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Cedarbraum JM;
XX
DR   WPI; 2000-475953/41.
XX
PT   Treating constipation and diarrhea using agonists and antagonists of
PT   trkC neurotrophin-3 receptor activity -
XX
PS   Disclosure; Page 16; 63pp; English.
XX
CC   This invention describes novel methods (I) and (II) for treating
CC   disorders associated with gastrointestinal motility (i.e. constipation
CC   and diarrhea (respectively), comprising administering agonists and
CC   antagonists of trkC neurotrophin-3 receptor activity. (I) is used to
CC   treat patients in an intensive care or coronary care unit for
CC   gastrointestinal hypomotility such as acute constipation associated with
CC   orthopedic, gynecological, thoracic and/or urological surgery.
CC   Alternatively, the constipation may be chronic and associated with
CC   enteric neuropathy, Parkinson's disease, multiple sclerosis, chronic use
CC   of opiate pain killers, irritable bowel syndrome or constipation in
CC   hospital patients. In particular, the constipation may be associated with
CC   spinal cord injury, paraplegia or quadriplegia. The products of the
CC   invention have antidiarrheic and laxative activity. This sequence
CC   represents the R-metHuNT protein which is used in the method of the
CC   invention. R-metHuNT is produced in Escherichia coli into which a plasmid
CC   containing a coding sequence for human NT-3 has been inserted. R-metHuNT
CC   has an amino acid sequence identical to native human NT-3 with the
CC   addition of an amino terminal methionine.
XX
SQ   Sequence   120 AA;

  Query Match             98.2%;  Score 641;  DB 21;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 13
AAE05868
ID   AAE05868 standard; protein; 120 AA.
XX
AC   AAE05868;
XX
DT   24-SEP-2001  (first entry)
XX
DE   Human recombinant neurotrophic factor-3 (NT-3), r-metHuNT-3.
XX
KW   Human; isoelectric point; pI; neurotrophic factor-3; NT-3;
KW   pharmacokinetic behaviour; recombinant protein; r-metHuNT-3.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /note= "This residue is expressed when the protein is
FT                   produced recombinantly in E. coli bacterial cells;
FT                   This protein is expressed without the methionine
FT                   residue when occurring naturally in mammalian cells"
XX
PN   US6271364-B1.
XX
PD   07-AUG-2001.
XX
PF   23-FEB-1999;   99US-0255953.
XX
PR   23-FEB-1999;   99US-0255953.
XX
PA   (AMGE-) AMGEN INC.
XX
PI   Cheung ENY,  Boone TC,  Hershenson SI,  Young JD;
XX
DR   WPI; 2001-464215/50.
XX
PT   Polypeptide analogs of the neurotrophin factor (NT-3) and its
PT   recombinant production method -
XX
PS   Disclosure; Fig 1; 24pp; English.
XX
CC   The present invention relates to a method for production of a
CC   polypeptide analogue of a cationic polypeptide selected from 4 fully
CC   defined polypeptide sequences, where the polypeptide analogue has an
CC   isoelectric point which is lower and an in vivo circulating life and/or
CC   absorption which is increased relative to those properties in unmodified
CC   neurotrophic factor-3 (NT-3). The method is useful for producing certain
CC   analogues of NT-3 which have a relatively lower pI, yet retain the
CC   structure and biological activity of the protein in its 'native' state,
CC   to assess the impact of the pI on the pharmacokinetic behaviour of
CC   proteins. The present sequence is human recombinant neurotrophic
CC   factor-3 (NT-3), r-metHuNT-3. This sequence is recombinantly produced
CC   in E. coli bacterial cells and thus expressing the methionine residue at
CC   its N-terminus.
XX
SQ   Sequence   120 AA;

  Query Match             98.2%;  Score 641;  DB 22;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 4.3e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 14
AAR11306
ID   AAR11306 standard; Protein; 136 AA.
XX
AC   AAR11306;
XX
DT   29-MAY-1991  (first entry)
XX
DE   Nerve Growth Factor-like pro-protein from human glioma cells.
XX
KW   nerve growth factor; NGF; cell proliferation; glioma cell.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..17
FT                   /label= propeptide
FT   Protein         18..136
FT                   /label= NGF-like polypeptide
FT   Peptide         18..31
FT                   /label= claimed partial peptide
FT                   /note= "12-14 successive amino acids from this
```

```
FT                              peptide are claimed"
FT   Peptide          127..135
FT                    /label= claimed partial peptide
FT                    /note= "8-9 successive amino acids from this
FT                           peptide are claimed"
XX
PN   EP418590-A.
XX
PD   27-MAR-1991.
XX
PF   24-AUG-1990;   90EP-0116234.
XX
PR   28-AUG-1989;   89JP-0218711.
PR   25-MAY-1990;   90JP-0134058.
XX
PA   (TAKE ) TAKEDA CHEMICAL IND KK.
XX
PI   Nakahama K,  Fukuda T,  Kurokawa T,  Kuroshima K;
XX
DR   WPI; 1991-088264/13.
DR   N-PSDB; AAQ11097.
XX
PT   Antibodies for peptide having sequence similar to nerve growth
PT   factor - for use in medicine in sinple and accurate immunoassay
XX
PS   Disclosure; Fig 2; 42pp; English.
XX
CC   A human glioma-derived lambda gt11 cDNA library was used to infect E.
CC   coli Y1090 and the colonies transferred to a nylon membrane. The
CC   filter was screened with labelled DNA coding for human beta-NGF as a
CC   probe. A positive clone was designated "lambda beta-GN1321" and was
CC   digested with EcoRI. The insert was cloned in EcoRI-digested pUC118
CC   to give plasmid pUNK5. The cDNA insert was sequenced and the deduced
CC   amino acid sequence was found to have 60 per cent homqlogy to human
CC   beta-NGF. The invention relates to an antibody to a peptide
CC   including at least 8 consecutive amino acids from position 18 to
CC   position 135 of this sequence.
CC   See also AAQ11096.
XX
SQ   Sequence   136 AA;

  Query Match             98.2%;  Score 641;  DB 12;  Length 136;
  Best Local Similarity   99.2%;  Pred. No. 5.1e-60;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      18 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 77

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      78 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 136


RESULT 15
AAR26273
ID   AAR26273 standard; Protein; 240 AA.
XX
AC   AAR26273;
XX
DT   04-FEB-1993  (first entry)
XX
DE   NGF2/NT-3 in pTB1339.
XX
KW   NGF-2; pTB1344; drug; hippocampus; cerebellum; nodose ganglion.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..18
FT                   /label= Signal_peptide
FT   Peptide         19..126
FT                   /label= Pro-peptide
FT   Protein         127..240
FT                   /label= Mature_NGF2/NT-3
XX
PN   EP499993-A.
XX
PD   26-AUG-1992.
XX
PF   15-FEB-1992;   92EP-0102555.
XX
PR   18-FEB-1991;   91JP-0023579.
XX
PA   (TAKE ) TAKEDA CHEM IND LTD.
XX
PI   Igarashi K,  Iwane M,  Kaisho Y;
XX
DR   WPI; 1992-286117/35.
DR   N-PSDB; AAQ27513.
XX
PT   Prodn. of human nerve growth factor-2 - used in research on brain
PT   and nervous system and as drug for senile dementia
XX
PS   Disclosure; Fig 8; 7pp; English.
XX
CC   The sequences given in AAR26272-73 are the protein encoded by the
CC   sequences of the human nerve growth factor-2 gene (NGF2/NT-3) within
CC   the plasmids pTB1339 or pTB1344. (See also AAQ27510-11).  NGF2/NT-3 is
CC   highly expressed in the human hippocampus and cerebellum.  It is
CC   expressed more highly in newborn animals than in adults.  It acts on
CC   nerve cells, such as nodose ganglion derived nerve cells and is thought
CC   to play a key role in nervous system development.  The NGF2/NT-3
CC   obtained by culturing plasmids pTB1339 or pTB1344 may be used as a
CC   reagent for research on the brain and nervous system and may be
CC   expected to serve as a therapeutic drug for senile dementia.  The
CC   plasmid vectors used allow production of NGF2/NT-3 stably and in
CC   large amounts ie. for industrial large scale production.
XX
SQ   Sequence   240 AA;

  Query Match             98.2%;  Score 641;  DB 13;  Length 240;
  Best Local Similarity   99.2%;  Pred. No. 1e-59;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     122 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 181

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     182 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 240


Search completed: December  2, 2002, 15:08:40
Job time : 24.9156 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 9.56624 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	641	98.2	257	2	C40304	neurotrophin-3 pre
2	641	98.2	258	2	S09155	neurotrophin-3 pre
3	641	98.2	282	2	A35781	hippocampus-derive
4	638	97.7	257	2	I50400	neurotrophin-3 pre
5	392.5	60.1	243	2	A26311	nerve growth facto
6	385	59.0	235	2	S14481	nerve growth facto
7	382.5	58.6	229	2	I46614	nerve growth facto
8	378.5	58.0	245	2	I56570	beta-nerve growth
9	378	57.9	236	2	JH0400	neurotrophin-4 pre
10	375.5	57.5	125	2	A26312	nerve growth facto
11	373.5	57.2	286	1	NGHUBM	nerve growth facto
12	371.5	56.9	241	2	JL0097	nerve growth facto
13	370	56.7	303	1	NGRTBA	nerve growth facto
14	368.5	56.4	307	1	NGMSMG	nerve growth facto
15	354	54.2	247	2	A40304	brain-derived neur
16	354	54.2	249	2	S12555	brain-derived neur
17	354	54.2	249	2	B40304	brain-derived neur
18	354	54.2	252	2	A30361	brain-derived neur
19	352.5	54.0	243	2	I51193	nerve growth facto
20	352	53.9	209	2	B42687	neurotrophin-4 pre
21	350	53.6	210	2	A42687	neurotrophin-4 pre
22	350	53.6	248	2	JC6183	brain-derived neur
23	349	53.4	117	2	S28161	nerve growth facto
24	349	53.4	269	2	I51708	brain-derived neur
25	345	52.8	114	2	I50606	brain-derived neur
26	343	52.5	114	2	I84765	brain-derived neur
27	326	49.9	114	2	I51599	brain-derived neur
28	323.5	49.5	116	1	NGNJXI	nerve growth facto
29	317.5	48.6	116	2	A58566	nerve growth facto
30	317.5	48.6	246	2	A59218	nerve growth facto
31	295.5	45.3	194	2	I51709	nerve growth facto
32	266	40.7	286	2	S50855	neurotrophin-6 - s
33	78	11.9	1268	2	B88209	protein K02A2.6 [i
34	72	11.0	390	2	JC4023	transforming growt
35	71.5	10.9	145	2	S74292	hypothetical prote
36	71.5	10.9	647	2	C87693	acetyl-CoA synthet
37	71	10.9	326	2	T10166	restriction endonu
38	71	10.9	498	2	B83884	beta-xylosidase /
39	71	10.9	783	2	B91124	probable isomerase
40	71	10.9	783	2	A85969	probable isomerase
41	70.5	10.8	718	2	T05840	subtilisin-like pr
42	70	10.7	759	2	S53922	PMT6 protein - yea
43	70	10.7	1099	2	T18257	phospholipase C -
44	69.5	10.6	195	2	AI3153	hypothetical prote
45	69.5	10.6	230	2	A98134	hypothetical prote

ALIGNMENTS

RESULT 1
C40304
neurotrophin-3 precursor - human
N;Alternate names: nerve growth factor 2; NGF-2
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
C;Accession: A36208; JH0141; C40304; S10719; C60536
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: A36208
A;Molecule type: DNA
A;Residues: 1-257 <JON>
A;Cross-references: GB:M37763; NID:g189300; PIDN:AAA59953.1; PID:g189301
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Lewis, M.; Shih, A.; Laramee, G.R.; Nikol
Neuron 4, 767-773, 1990
A;Title: Primary structure and biological activity of a novel human neurotrophic fact
A;Reference number: JH0141; MUID:90262727; PMID:2344409
A;Accession: JH0141
A;Molecule type: DNA
A;Residues: 1-257 <ROS>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: C40304
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M61180; NID:g189302; PIDN:AAA63231.1; PID:g189303
R;Kaisho, Y.; Yoshimura, K.; Nakahama, K.
FEBS Lett. 266, 187-191, 1990
A;Title: Cloning and expression of a cDNA encoding a novel human neurotrophic factor.
A;Reference number: S10719; MUID:90306351; PMID:2365067
A;Accession: S10719
A;Molecule type: mRNA
A;Residues: 1-257 <KAI>
A;Cross-references: GB:X53655; NID:g287794; PIDN:CAA37703.1; PID:g287795
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: C60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-73,'Q',75-77,'R',79-108,'T',110-257 <YAN>
C;Genetics:
A;Gene: GDB:NTF3
A;Cross-references: GDB:125917; OMIM:162660
A;Map position: 12p13-12p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein

```
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-138/Domain: propeptide #status predicted <PRO>
F;139-257/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             98.2%;  Score 641;  DB 2;  Length 257;
  Best Local Similarity   99.2%;  Pred. No. 2.4e-57;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     139 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     199 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 2
S09155
neurotrophin-3 precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 16-Jul-1999
C;Accession: S09155; S51179
R;Hohn, A.; Leibrock, J.; Bailey, K.; Barde, Y.A.
Nature 344, 339-341, 1990
A;Title: Identification and characterization of a novel member of the nerve growth factc
A;Reference number: S09155; MUID:90190865; PMID:2314473
A;Accession: S09155
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-258 <HOH>
A;Cross-references: GB:X53257; NID:g53451; PIDN:CAA37348.1; PID:g53452
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51179
A;Status: preliminary
A;Molecule type: protein
A;Residues: 140-152 <KOL>
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;140-258/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             98.2%;  Score 641;  DB 2;  Length 258;
  Best Local Similarity   99.2%;  Pred. No. 2.5e-57;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     140 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 199

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     200 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 258


RESULT 3
A35781
hippocampus-derived neurotrophic factor precursor - rat
N;Alternate names: neurotrophin-3 precursor
C;Species: Rattus norvegicus (Norway rat)
C;Date: 05-Oct-1990 #sequence_revision 05-Oct-1990 #text_change 16-Jul-1999
C;Accession: A35781; A40094
R;Ernfors, P.; Ibanez, C.F.; Ebendal, T.; Olson, L.; Persson, H.
Proc. Natl. Acad. Sci. U.S.A. 87, 5454-5458, 1990
A;Title: Molecular cloning and neurotrophic activities of a protein with structural simi
A;Reference number: A35781; MUID:90319130; PMID:2164684
A;Accession: A35781
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-282 <ERN>
A;Cross-references: GB:M34643
R;Maisonpierre, P.C.; Belluscio, L.; Squinto, S.; Ip, N.Y.; Furth, M.E.; Lindsay, R.M
Science 247, 1446-1451, 1990
A;Title: Neurotrophin-3: a neurotrophic factor related to NGF and BDNF.
A;Reference number: A40094; MUID:90208301; PMID:2321006
A;Accession: A40094
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 25-282 <MAI>
A;Cross-references: GB:M33968; NID:g205771; PIDN:AAA41727.1; PID:g205772
C;Superfamily: nerve growth factor beta chain

  Query Match             98.2%;  Score 641;  DB 2;  Length 282;
  Best Local Similarity   99.2%;  Pred. No. 2.7e-57;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     164 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 223

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     224 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 282


RESULT 4
I50400
neurotrophin-3 precursor - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I50400; S42227
R;Maisonpierre, P.C.; Belluscio, L.; Conover, J.C.; Yancopoulos, G.D.
DNA Seq. 3, 49-54, 1992
A;Title: Gene sequences of chicken BDNF and NT-3.
A;Reference number: I50400; MUID:93091238; PMID:1457809
A;Accession: I50400
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M83378; NID:g212464; PIDN:AAA68880.1; PID:g212465
R;Hallboeoek, F.; Ibanez, C.F.; Ebendal, T.; Persson, H.
Eur. J. Neurosci. 5, 1-14, 1993
A;Title: Cellular localization of brain-derived neurotrophic factor and neurotrophin-
A;Reference number: S42227; MUID:94084226; PMID:8074744
A;Accession: S42227
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 32-257 <HAL>
A;Cross-references: EMBL:Z30092; NID:g455531; PIDN:CAA82908.1; PID:g927570
C;Genetics:
A;Gene: NT-3
C;Superfamily: nerve growth factor beta chain

  Query Match             97.7%;  Score 638;  DB 2;  Length 257;
  Best Local Similarity   98.3%;  Pred. No. 4.9e-57;
  Matches  117;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     139 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           :||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     199 KPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 5
A26311
nerve growth factor beta chain precursor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 21-Jul-2000
```

```
C;Accession: A26311; A24857; S00127; S12532
R;Ebendal, T.; Larhammar, D.; Persson, H.
EMBO J. 5, 1483-1487, 1986
A;Title: Structure and expression of the chicken beta nerve growth factor gene.
A;Reference number: A26311; MUID:86300646; PMID:3017695
A;Accession: A26311
A;Molecule type: mRNA
A;Residues: 1-243 <EBE>
A;Cross-references: GB:X04003; NID:g63697; PIDN:CAA27633.1; PID:g1334740
R;Wion, D.; Perret, C.; Frechin, N.; Keller, A.; Behar, G.; Brachet, P.; Auffray, C.
FEBS Lett. 203, 82-86, 1986
A;Title: Molecular cloning of the avian beta-nerve growth factor gene: transcription in
A;Reference number: A24857; MUID:86248129; PMID:3720959
A;Accession: A24857
A;Molecule type: DNA
A;Residues: 118-243 <WIO>
A;Cross-references: GB:D00010; GB:N00010; GB:X04067; NID:g222840; PIDN:BAA00008.1; PID:g
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation of
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: S00127
A;Status: preliminary; not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 121-243 <MEI>
A;Cross-references: GB:M26810; NID:g212446; PIDN:AAA48984.1; PID:g212447
R;Ibanez, C.F.; Hallboeoek, F.; Ebendal, T.; Persson, H.
EMBO J. 9, 1477-1483, 1990
A;Title: Structure-function studies of nerve growth factor: functional importance of hig
A;Reference number: S12532; MUID:90228346; PMID:2328722
A;Accession: S12532
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 126-243 <IBA>
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor
F;1-125/Domain: signal sequence #status predicted <SIG>
F;126-243/Product: nerve growth factor beta chain #status predicted <MAT>

  Query Match            60.1%;  Score 392.5;  DB 2;  Length 243;
  Best Local Similarity  62.5%;  Pred. No. 3.2e-32;
  Matches   70;  Conservative   18;  Mismatches   23;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :|||||:   |:  ||||:||:|:: ||| :|
Db     132 HRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDPRPVSSG 191

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119
           ||||| ||||| | |: |:|:||| |  |   ||:|||||:||  |||| ||
Db     192 CRGIDAKHWNSYCTTTHTFVKALTME-GKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 6
S14481
nerve growth factor beta chain precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 16-Jul-1999
C;Accession: S14481
R;Carriero, F.; Campioni, M.; Cardinali, B.; Pierandrei-Amaldi, P.
submitted to the EMBL Data Library, October 1990
A;Description: Structure and expression of the nerve growth gene in Xenopus oocyte and e
A;Reference number: S14481
A;Accession: S14481
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-235 <CAR>
A;Cross-references: EMBL:X55716; NID:g64914; PIDN:CAA39249.1; PID:g64915
C;Superfamily: nerve growth factor beta chain

  Query Match            59.0%;  Score 385;  DB 2;  Length 235;
  Best Local Similarity  61.9%;  Pred. No. 1.7e-31;
  Matches   70;  Conservative   18;  Mismatches   23;  Indels    2;  Gaps    2;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           |:|||||||| |:|| :|: | ||:| :|||||:   ||  ||||:||:|:: :|| :|
Db     125 HKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDPKPVSSG 184

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||| ||||| | |: |:|:||| |  |   ||:|||||:||  |||| |||
Db     185 CRGIDAKHWNSYCTTTHTFVKALTME-GKQAAWRFIRIDTACVCVLSRK-GRT 235


RESULT 7
I46614
nerve growth factor B - pig (fragment)
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 21-Feb-1997 #sequence_revision 21-Feb-1997 #text_change 16-Jul-1999
C;Accession: I46614
R;Lahbib-Mansais, Y.; Mellink, C.; Yerle, M.; Gellin, J.
Cytogenet. Cell Genet. 67, 120-125, 1994
A;Title: A new marker (NGFB) on pig chromosome 4, isolated by using consensus sequenc
A;Reference number: I46614; MUID:94313891; PMID:8039422
A;Accession: I46614
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-229 <LAH>
A;Cross-references: GB:L31898; NID:g476732; PIDN:AAA21301.1; PID:g533771
C;Genetics:
A;Gene: NGFB
C;Superfamily: nerve growth factor beta chain

  Query Match            58.6%;  Score 382.5;  DB 2;  Length 229;
  Best Local Similarity  60.7%;  Pred. No. 3e-31;
  Matches   68;  Conservative   18;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db     117 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 176

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  |||| ||
Db     177 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAGR 227


RESULT 8
I56570
beta-nerve growth factor - rat (fragment)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C;Accession: I56570
R;Whittemore, S.R.; Friedman, P.L.; Larhammar, D.G.; Persson, H.; Gonzalez-Carvajal,
J. Neurosci. Res. 20, 403-410, 1988
A;Title: Rat beta-nerve growth factor sequence and site of synthesis in the adult hip
A;Reference number: I56570; MUID:89037223; PMID:3184206
A;Accession: I56570
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-245 <RES>
A;Cross-references: GB:M36589; NID:g205691; PIDN:AAA41697.1; PID:g205692
C;Superfamily: nerve growth factor beta chain

  Query Match            58.0%;  Score 378.5;  DB 2;  Length 245;
  Best Local Similarity  59.8%;  Pred. No. 8.3e-31;
  Matches   67;  Conservative   20;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           | ||:||||| |:|| ||::| ||:| :||||||:   ||  ||||:||:|:   ||::|
Db     133 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRAPNPVESG 192

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:|||:: :|   ||:|||||:||  ||||  |
Db     193 CRGIDSKHWNSYCTTTHTFVKALTTD-DKQAAWRFIRIDTACVCVLSRKAAR 243


RESULT 9
JH0400
```

```
neurotrophin-4 precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 16-Jul-1999
C;Accession: JH0400
R;Hallboeoek, F.; Ibanez, C.F.; Persson, H.
Neuron 6, 845-858, 1991
A;Title: Evolutionary studies of the nerve growth factor family reveal a novel member ab
A;Reference number: JH0400; MUID:91222573; PMID:2025430
A;Accession: JH0400
A;Molecule type: DNA
A;Residues: 1-236 <HAL>
A;Cross-references: GB:Z30090; NID:g455533; PIDN:CAA82906.1; PID:g455534
C;Comment: This protein belongs to the nerve growth factor family.
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-113/Domain: propeptide #status predicted <PRO>
F;114-236/Product: neurotrophin-4 #status predicted <MAT>
F;106/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             57.9%;  Score 378;  DB 2;  Length 236;
  Best Local Similarity   59.6%;  Pred. No. 9e-31;
  Matches   68;  Conservative   16;  Mismatches   30;  Indels    0;  Gaps    0;

Qy       7 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKN 66
           | ||| ||||| ::|||||  :|:| ||  |||: ||:|   |:||||:||:|  :
Db     123 SRRGELSVCDSVNVWVTDKRTAVDDRGKIVTVMSEIQTLTGPLKQYFFETKCNPSGSTTR 182

Qy      67 GCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||:| | | |:||  |:|||||| : |||||||||||||:||  |  : |||
Db     183 GCRGVDKKQWISECKAKQSYVRALTIDANKLVGWRWIRIDTACVCTLLSRTGRT 236


RESULT 10
A26312
nerve growth factor beta chain precursor - bovine (fragment)
C;Species: Bos primigenius taurus (cattle)
C;Date: 19-Nov-1988 #sequence_revision 19-Nov-1988 #text_change 16-Jul-1999
C;Accession: A26312
R;Meier, R.; Becker-Andre, M.; Goetz, R.; Heumann, R.; Shaw, A.; Thoenen, H.
EMBO J. 5, 1489-1493, 1986
A;Title: Molecular cloning of bovine and chick nerve growth factor (NGF): delineation of
A;Reference number: A26312; MUID:86300647; PMID:2427334
A;Accession: A26312
A;Molecule type: mRNA
A;Residues: 1-125 <MEI>
A;Cross-references: GB:M26809; NID:g163419; PIDN:AAA30666.1; PID:g163420
C;Comment: Nerve growth factor stimulates neurite outgrowth from sympathetic and embryon
C;Superfamily: nerve growth factor beta chain
C;Keywords: growth factor; homodimer; seminal vesicle
F;6-125/Product: nerve growth factor #status predicted <MAT>
F;20-85,63-113,73-115/Disulfide bonds: #status predicted

  Query Match             57.5%;  Score 375.5;  DB 2;  Length 125;
  Best Local Similarity   59.8%;  Pred. No. 8.1e-31;
  Matches   67;  Conservative   19;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db      13 HRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 72

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:||||||:||  |||| |:
Db      73 CRGIDAKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKTGQ 123


RESULT 11
NGHUBM
nerve growth factor beta chain precursor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 19-Feb-1984 #sequence_revision 19-Feb-1984 #text_change 18-Jun-1999
C;Accession: A01399; S10253
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mo
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A01399
A;Molecule type: DNA
A;Residues: 1-286 <ULL>
R;Borsani, G.; Pizzuti, A.; Rugarli, E.I.; Falini, A.; Silani, V.; Sidoli, A.; Scarla
Nucleic Acids Res. 18, 4020, 1990
A;Title: cDNA sequence of human beta-NGF.
A;Reference number: S10253; MUID:90326556; PMID:2374737
A;Accession: S10253
A;Status: translation not shown
A;Molecule type: mRNA
A;Residues: 46-286 <BOR>
A;Cross-references: EMBL:X52599; NID:g29476; PIDN:CAA36832.1; PID:g29477
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: GDB:NGFB
A;Cross-references: GDB:120233; OMIM:162030
A;Map position: 1p13.1-1p13.1
A;Introns: 41/3
C;Complex: nerve growth factor is composed of two alpha chains, two beta chains, and
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; submandibular gland
F;1-166/Domain: signal sequence and propeptide (fragment) #status predicted <SIG>
F;167-284/Product: nerve growth factor beta chain #status predicted <MAT>
F;26,114,159,211/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;181-246,224-274,234-276/Disulfide bonds: #status predicted

  Query Match             57.2%;  Score 373.5;  DB 1;  Length 286;
  Best Local Similarity   59.8%;  Pred. No. 3.1e-30;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db     174 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 233

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:||||||:||  |||| |
Db     234 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 284


RESULT 12
JL0097
nerve growth factor beta chain precursor - guinea pig
C;Species: Cavia porcellus (guinea pig)
C;Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 15-Mar-1996
C;Accession: JL0097
R;Schwarz, M.A.; Fisher, D.; Bradshaw, R.A.; Isackson, P.J.
J. Neurochem. 52, 1203-1209, 1989
A;Title: Isolation and sequence of a cDNA clone of beta-nerve growth factor from the
A;Reference number: JL0097; MUID:89177243; PMID:2926397
A;Accession: JL0097
A;Molecule type: mRNA
A;Residues: 1-241 <SCH>
A;Note: the authors translated the codon GCU for residue 214 as Asp
C;Genetics:
A;Gene: Beta-NGF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; hormone
F;1-121/Domain: propeptide #status predicted <PRO>
F;122-241/Product: nerve growth factor beta chain #status predicted <MAT>
F;146-154/Region: receptor binding #status predicted
F;69,114/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             56.9%;  Score 371.5;  DB 2;  Length 241;
  Best Local Similarity   58.0%;  Pred. No. 4.2e-30;
  Matches   65;  Conservative   20;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           | ||:||||| |:|| ||::| ||:| :|||| |:   |:  ||||:||:|::  || :|
Db     129 HMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRDPSPVDSG 188
```

```
Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:|||:  ||   ||:|||||:||  |:||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTTA-NKQAAWRFIRIDTACVCVLNRKAAR 239


RESULT 13
NGRTBA
nerve growth factor beta chain precursor - multimammate rat (Mastomys natalensis)
C;Species: Mastomys natalensis
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 18-Jun-1999
C;Accession: JT0343
R;Fahnestock, M.; Bell, R.A.
Gene 69, 257-264, 1988
A;Title: Molecular cloning of a cDNA encoding the nerve growth factor precursor from Mas
A;Reference number: JT0343; MUID:89172070; PMID:3234767
A;Accession: JT0343
A;Molecule type: mRNA
A;Residues: 1-303 <FAH>
A;Cross-references: GB:M22748; NID:g202514; PIDN:AAA40599.1; PID:g202515
A;Note: it is uncertain whether Met-1 or Met-63 is the initiator
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer; submaxillary gland
F;184-301/Product: nerve growth factor beta chain #status predicted <MAT>
F;131,176,228/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;198-263,241-291,251-293/Disulfide bonds: #status predicted

  Query Match             56.7%;  Score 370;  DB 1;  Length 303;
  Best Local Similarity   54.0%;  Pred. No. 7.5e-30;
  Matches   67;  Conservative   24;  Mismatches   23;  Indels   10;  Gaps    2;

Qy       5 HKSHR---------GEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYE 55
             |:| |         ||:||||| |:|| ||::| ||:|::|||||:   ||  ||||:|
Db     179 HRSKRSSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFE 238

Qy      56 TRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSR 115
             |:|:   ||::|||||| ||||| | |: |:|:|||::: :   ||:|||||:||  |:|
Db     239 TKCRARNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQ-AAWRFIRIDTACVCVLTR 297

Qy     116 KIGR 119
           |  |
Db     298 KAPR 301


RESULT 14
NGMSMG
nerve growth factor beta chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Nov-1980 #sequence_revision 19-Feb-1984 #text_change 21-Jul-2000
C;Accession: A93301; A93305; A90366; I49689; I52891; A01400; I49690
R;Scott, J.; Selby, M.; Urdea, M.; Quiroga, M.; Bell, G.I.; Rutter, W.J.
Nature 302, 538-540, 1983
A;Title: Isolation and nucleotide sequence of a cDNA encoding the precursor of mouse ner
A;Reference number: A93301; MUID:83167518; PMID:6336309
A;Accession: A93301
A;Molecule type: mRNA
A;Residues: 1-307 <SCO>
A;Cross-references: GB:V00836; NID:g53364; PIDN:CAA24221.1; PID:g53365
R;Ullrich, A.; Gray, A.; Berman, C.; Dull, T.J.
Nature 303, 821-825, 1983
A;Title: Human beta-nerve growth factor gene sequence highly homologous to that of mouse
A;Reference number: A93305; MUID:83244969; PMID:6688123
A;Accession: A93305
A;Molecule type: mRNA
A;Residues: 1-307 <ULL>
A;Cross-references: GB:K01759; NID:g200051; PIDN:AAA39820.1; PID:g387495
A;Note: these authors believe that Met-67 is probably the amino-terminal residue and tha
R;Angeletti, R.H.; Hermodson, M.A.; Bradshaw, R.A.
Biochemistry 12, 100-115, 1973
A;Title: Amino acid sequences of mouse 2.5S nerve growth factor. II. Isolation and chara
A;Reference number: A90366; MUID:73075048; PMID:4566923
A;Accession: A90366
A;Molecule type: protein
A;Residues: 188-216,'N',218-305 <ANG>
R;Selby, M.J.; Edwards, R.; Sharp, F.; Rutter, W.J.
Mol. Cell. Biol. 7, 3057-3064, 1987
A;Title: Mouse nerve growth factor gene: Structure and expression.
A;Reference number: I49689; MUID:88038855; PMID:3670305
A;Accession: I49689
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-307 <RES>
A;Cross-references: GB:M17298; NID:g193493; PIDN:AAA37687.1; PID:g467311
R;Ullrich, A.; Gray, A.; Berman, C.H.; Coussens, L.; Dull, T.J.
Cold Spring Harb. Symp. Quant. Biol. 48, 435-442, 1983
A;Title: Sequence homology of human and mouse beta-NGF subunit genes.
A;Reference number: I52891; MUID:84206565; PMID:6327169
A;Accession: I52891
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-307 <RE3>
A;Cross-references: GB:M14805; NID:g200053; PIDN:AAA39821.1; PID:g200054
C;Comment: The active molecule is a dimer of identical chains associated by noncovale
C;Comment: Nerve growth factor is found in submaxillary gland in large quantities and
nic sensory ganglia in vivo and in vitro and to increase cellular neurotubule levels
C;Genetics:
A;Gene: NGFB
A;Introns: 21/2; 62/3
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor; homodimer
F;1-187/Domain: signal sequence and propeptide #status predicted <SIG>
F;188-305/Product: nerve growth factor beta chain #status experimental <MAT>
F;135,180/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;202-267,245-295,255-297/Disulfide bonds: #status experimental
F;232/Binding site: carbohydrate (Asn) (covalent) #status absent

  Query Match             56.4%;  Score 368.5;  DB 1;  Length 307;
  Best Local Similarity   58.0%;  Pred. No. 1.1e-29;
  Matches   65;  Conservative   21;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           | ||:||||| |:|| ||::| ||:| :|||| |:   ||  :|||:||:|: : ||::|
Db     195 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLAEVNINNSVFRQYFFETKCRASNPVESG 254

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:|||::  |   ||:||||||:||  ||||  |
Db     255 CRGIDSKHWNSYCTTTHTFVKALTTD-EKQAAWRFIRIDTACVCVLSRKATR 305


RESULT 15
A40304
brain-derived neurotrophic factor precursor - human
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 21-Jul-2000
C;Accession: B36208; A60536; A40304; A37218; A61115; I38072
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: B36208
A;Molecule type: DNA
A;Residues: 1-247 <JON>
A;Cross-references: GB:M37762; NID:g179402; PIDN:AAA51820.1; PID:g179403
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: A60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-65,'M',67-247 <YAN>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: A40304
```

A;Molecule type: mRNA
A;Residues: 1-247 <MAI>
A;Cross-references: GB:M61176; NID:g179404; PIDN:AAA69805.1; PID:g896463
A;Note: the sequence in GenBank entry HUMBDNFB, release 106.0, (PID:g896463) begins tran
R;Yamamoto, H.; Gurney, M.E.
J. Neurosci. 10, 3469-3478, 1990
A;Title: Human platelets contain brain-derived neurotrophic factor.
A;Reference number: A37218; MUID:91038253; PMID:2230938
A;Accession: A37218
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 138-236 <YAM>
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Martin, E.; Burton, L.E.; Shih, A.; Laramee,
Endocrinology 129, 1289-1294, 1991
A;Title: Primary structure and biological activity of human brain-derived neurotrophic f
A;Reference number: A61115; MUID:91339743; PMID:1874171
A;Accession: A61115
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-65,'M',67-247 <ROS>
R;Shintani, A.; Ono, Y.; Kaisho, Y.; Igarashi, K.
Biochem. Biophys. Res. Commun. 182, 325-332, 1992
A;Title: Characterization of the 5'-flanking region of the human brain-derived neurotrop
A;Reference number: I38072; MUID:92118032; PMID:1339267
A;Accession: I38072
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-247 <SHI>
A;Cross-references: EMBL:X60201; NID:g3928269; PIDN:CAA42761.1; PID:g496626
A;Note: the authors do not discuss this mRNA sequence in this reference; attribution is
C;Genetics:
A;Gene: GDB:BDNF
A;Cross-references: GDB:125916; OMIM:113505
A;Map position: 11p13-11p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: dimer; glycoprotein
F;1-16/Domain: signal sequence #status predicted <SIG>
F;17-128/Domain: propeptide #status predicted <PRO>
F;129-247/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;121/Binding site: carbohydrate (Asn) (covalent) #status experimental

Query Match 54.2%; Score 354; DB 2; Length 247;
Best Local Similarity 57.4%; Pred. No. 2.5e-28;
Matches 66; Conservative 17; Mismatches 30; Indels 2; Gaps 1;

```
Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 192

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| :|||||||:|:|:|:|||||| :: | :|||:|||||||||  |: | ||
Db     193 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247
```

Search completed: December 2, 2002, 15:14:00
Job time : 10.5662 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 4.9238 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	641	98.2	257	1	NT3_HUMAN	P20783 homo sapien
2	641	98.2	258	1	NT3_MOUSE	P20181 mus musculu
3	641	98.2	258	1	NT3_RAT	P18280 rattus norv
4	638	97.7	257	1	NT3_CHICK	P25433 gallus gall
5	634	97.1	257	1	NT3_FELCA	Q9tst2 felis silve
6	619	94.8	260	1	NT3_XENLA	P25435 xenopus lae
7	392.5	60.1	243	1	NGF_CHICK	P05200 gallus gall
8	385	59.0	231	1	NGF_XENLA	P21617 xenopus lae
9	382.5	58.6	229	1	NGF_PIG	Q29074 sus scrofa
10	378.5	58.0	241	1	NGF_RAT	P25427 rattus norv
11	378	57.9	236	1	NT4_XENLA	P24727 xenopus lae
12	373.5	57.2	241	1	NGF_HUMAN	P01138 homo sapien
13	372.5	57.0	231	1	NGF_BOVIN	P13600 bos taurus
14	371.5	56.9	241	1	NGF_CAVPO	P19093 cavia porce
15	370	56.7	241	1	NGF_PRANA	P20675 praomys nat
16	368.5	56.4	241	1	NGF_MOUSE	P01139 mus musculu
17	356	54.5	246	1	BDNF_CHICK	P25429 gallus gall
18	355	54.4	255	1	BDNF_CAVPO	O70183 cavia porce
19	354	54.2	247	1	BDNF_HUMAN	P23560 homo sapien
20	354	54.2	247	1	BDNF_PROLO	O18755 procyon lot
21	354	54.2	247	1	BDNF_URSAR	O18752 ursus arcto
22	354	54.2	247	1	BDNF_URSML	O18753 ursus malay
23	354	54.2	249	1	BDNF_MOUSE	P21237 mus musculu
24	354	54.2	249	1	BDNF_RAT	P23363 rattus norv
25	354	54.2	252	1	BDNF_PIG	P14082 sus scrofa
26	352.5	54.0	243	1	NGF_BUNMU	P34128 bungarus mu
27	352	53.9	209	1	NT5_RAT	P34131 rattus norv
28	350	53.6	210	1	NT5_HUMAN	P34130 homo sapien
29	350	53.6	247	1	BDNF_FELCA	Q9tst3 felis silve
30	350	53.6	248	1	BDNF_BOVIN	Q95106 bos taurus
31	350	53.6	270	1	BDNF_CYPCA	Q90322 cyprinus ca
32	349	53.4	117	1	NGF_DABRR	P30894 daboia russ
33	349	53.4	269	1	BDNF_XIPMA	Q02193 xiphophorus
34	343	52.5	114	1	BDNF_MACMU	Q06225 macaca mula
35	326	49.9	114	1	BDNF_XENLA	P25432 xenopus lae
36	320.5	49.1	116	1	NGF_NAJNA	P01140 naja naja (
37	314.5	48.2	116	1	NGF_NAJAT	P21377 naja atra (
38	308	47.2	140	1	NT7_CYPCA	O93474 cyprinus ca
39	299	45.8	233	1	NT7_BRARE	O73797 brachydanio
40	295.5	45.3	194	1	NGF_XIPMA	P34129 xiphophorus
41	244.5	37.4	257	1	NT6B_HUMAN	P34133 homo sapien
42	241.5	37.0	186	1	NT6G_HUMAN	P34134 homo sapien
43	238.5	36.5	257	1	NT6A_HUMAN	P34132 homo sapien
44	212	32.5	43	1	NT3_RAJCL	P25434 raja clavat
45	147	22.5	42	1	NGF_VIPLE	P25428 vipera lebe

ALIGNMENTS

RESULT 1
NT3_HUMAN
ID NT3_HUMAN STANDARD; PRT; 257 AA.
AC P20783;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1991 (Rel. 17, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE (Nerve growth factor 2) (NGF-2).
GN NTF3.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90262727; PubMed=2344409;
RA Rosenthal A., Goeddel D.V., Nguyen T., Lewis M., Shih A.,
RA Laramee G.R., Nikolics K., Winslow J.W.;
RT "Primary structure and biological activity of a novel human
RT neurotrophic factor.";
RL Neuron 4:767-773(1990).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=91045937; PubMed=2236018;
RA Jones K.R., Reichardt L.F.;
RT "Molecular cloning of a human gene that is a member of the nerve
RT growth factor family.";
RL Proc. Natl. Acad. Sci. U.S.A. 87:8060-8064(1990).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=90306351; PubMed=2365067;
RA Kaisho Y., Yoshimura K., Nakahama K.;
RT "Cloning and expression of a cDNA encoding a novel human neurotrophic
RT factor.";
RL FEBS Lett. 266:187-191(1990).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE=91365361; PubMed=1889806;
RA Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA Yancopoulos G.D.;
RT "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT gene structures, distributions, and chromosomal localizations.";
RL Genomics 10:558-568(1991).
RN [5]
RP SEQUENCE OF 194-236 FROM N.A.
RC TISSUE=Leukocyte;
RX MEDLINE=91222573; PubMed=2025430;
RA Hallboeoek F., Ibanez C.F., Persson H.;
RT "Evolutionary studies of the nerve growth factor family reveal a
RT novel member abundantly expressed in Xenopus ovary.";
RL Neuron 6:845-858(1991).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX MEDLINE=95217877; PubMed=7703225;

```
RA   Robinson R.C., Radziejewski C., Stuart D.I., Jones E.Y.;
RT   "Structure of the brain-derived neurotrophic factor/neurotrophin 3
RT   heterodimer.";
RL   Biochemistry 34:4139-4146(1995).
RN   [7]
RP   VARIANT GLU-76.
RX   MEDLINE=95251647; PubMed=7733919;
RA   Hattori M., Nanko S.;
RT   "Association of neurotrophin-3 gene variant with severe forms of
RT   schizophrenia.";
RL   Biochem. Biophys. Res. Commun. 209:513-518(1995).
RN   [8]
RP   VARIANT GLU-76.
RX   MEDLINE=96253892; PubMed=8925252;
RA   Arinami T., Takekoshi K., Itokawa M., Hamaguchi H., Toru M.;
RT   "Failure to find associations of the CA repeat polymorphism in the
RT   first intron and the Gly-63/Glu-63 polymorphism of the neurotrophin-3
RT   gene with schizophrenia.";
RL   Psychiatr. Genet. 6:13-15(1996).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- POLYMORPHISM: Variant Glu-76 (frequently reported as Glu-63) was
CC       thought to be associated with severe forms of schizophrenia. This
CC       does not seem to be the case.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X53655; CAA37703.1; -.
DR   EMBL; M37763; AAA59953.1; -.
DR   EMBL; M61180; AAA63231.1; -.
DR   PIR; JH0141; JH0141.
DR   PIR; A36208; A36208.
DR   PIR; S10719; S10719.
DR   PIR; C40304; C40304.
DR   PDB; 1BND; 04-APR-96.
DR   PDB; 1B8K; 09-FEB-99.
DR   Genew; HGNC:8023; NTF3.
DR   MIM; 162660; -.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; Polymorphism; 3D-structure.
FT   SIGNAL       1     16       POTENTIAL.
FT   PROPEP      17    138
FT   CHAIN      139    257       NEUROTROPHIN-3.
FT   DISULFID   152    217
FT   DISULFID   195    246
FT   DISULFID   205    248
FT   CARBOHYD   131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARIANT     76     76       G -> E.
FT                               /FTId=VAR_012084.
SQ   SEQUENCE   257 AA;  29354 MW;  39A5BB3B28E25E03 CRC64;

  Query Match             98.2%;  Score 641;  DB 1;  Length 257;
  Best Local Similarity   99.2%;  Pred. No. 2.2e-59;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     139 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          ||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     199 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 2
NT3_MOUSE
ID   NT3_MOUSE      STANDARD;      PRT;   258 AA.
AC   P20181;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3 OR NTF-3.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90190865; PubMed=2314473;
RA   Hohn A., Leibrock J., Bailey K., Barde Y.-A.;
RT   "Identification and characterization of a novel member of the nerve
RT   growth factor/brain-derived neurotrophic factor family.";
RL   Nature 344:339-341(1990).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X53257; CAA37348.1; -.
DR   PIR; S09155; S09155.
DR   HSSP; P20783; 1B8K.
DR   MGD; MGI:97380; Ntf3.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     16       POTENTIAL.
FT   PROPEP      17    139
FT   CHAIN      140    258       NEUROTROPHIN-3.
FT   DISULFID   153    218       BY SIMILARITY.
FT   DISULFID   196    247       BY SIMILARITY.
FT   DISULFID   206    249       BY SIMILARITY.
FT   CARBOHYD   131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   258 AA;  29587 MW;  7180D064E8AE6042 CRC64;

  Query Match             98.2%;  Score 641;  DB 1;  Length 258;
  Best Local Similarity   99.2%;  Pred. No. 2.2e-59;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     140 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 199
```

```
Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     200 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 258


RESULT 3
NT3_RAT
ID   NT3_RAT        STANDARD;      PRT;   258 AA.
AC   P18280;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3 OR NTF-3.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90319130; PubMed=2164684;
RA   Ernfors P., Ibanez C.F., Ebendal T., Olson L., Persson H.;
RT   "Molecular cloning and neurotrophic activities of a protein with
RT   structural similarities to nerve growth factor: developmental and
RT   topographical expression in the brain.";
RL   Proc. Natl. Acad. Sci. U.S.A. 87:5454-5458(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90208301; PubMed=2321006;
RA   Maisonpierre P.C., Belluscio L., Squinto S., Ip N.Y., Furth M.E.,
RA   Lindsay R.M., Yancopoulos G.D.;
RT   "Neurotrophin-3: a neurotrophic factor related to NGF and BDNF.";
RL   Science 247:1446-1451(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [4]
RP   SEQUENCE OF 195-237 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M34643; AAA41313.1; -.
DR   EMBL; M33968; AAA41727.1; -.
DR   EMBL; M61179; AAA63497.1; -.
DR   PIR; A35781; A35781.
DR   PIR; A40094; A40094.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    139
FT   CHAIN       140    258       NEUROTROPHIN-3.
FT   DISULFID    153    218       BY SIMILARITY.
FT   DISULFID    196    247       BY SIMILARITY.
FT   DISULFID    206    249       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   258 AA;  29644 MW;  74D557CF8518A1CE CRC64;

  Query Match            98.2%;  Score 641;  DB 1;  Length 258;
  Best Local Similarity  99.2%;  Pred. No. 2.2e-59;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     140 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 199

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     200 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 258


RESULT 4
NT3_CHICK
ID   NT3_CHICK      STANDARD;      PRT;   257 AA.
AC   P25433;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-DEC-1992 (Rel. 24, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93091238; PubMed=1457809;
RA   Maisonpierre P., Belluscio L., Conover J.C., Yancopoulos G.D.;
RT   "Gene sequences of chicken BDNF and NT-3.";
RL   DNA Seq. 3:49-54(1992).
RN   [2]
RP   SEQUENCE OF 194-236 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M83378; AAA68880.1; -.
```

```
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     16       POTENTIAL.
FT   PROPEP      17    138
FT   CHAIN      139    257       NEUROTROPHIN-3.
FT   DISULFID   152    217       BY SIMILARITY.
FT   DISULFID   195    246       BY SIMILARITY.
FT   DISULFID   205    248       BY SIMILARITY.
FT   CARBOHYD   131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29701 MW;  EE043BA2A005C1E7 CRC64;

  Query Match             97.7%;  Score 638;  DB 1;  Length 257;
  Best Local Similarity   98.3%;  Pred. No. 4.5e-59;
  Matches  117;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     139 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           :|||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     199 KPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 5
NT3_FELCA
ID   NT3_FELCA      STANDARD;      PRT;   257 AA.
AC   Q9TST2;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Felis silvestris catus (Cat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX   NCBI_TaxID=9685;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20211727; PubMed=10745216;
RA   Lein E.S., Hohn A., Shatz C.J.;
RT   "Dynamic regulation of BDNF and NT-3 expression during visual system
RT   development.";
RL   J. Comp. Neurol. 420:1-18(2000).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF192538; AAF03424.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     16       POTENTIAL.
FT   PROPEP      17    138       BY SIMILARITY.
FT   CHAIN      139    257       NEUROTROPHIN-3.
FT   DISULFID   152    217       BY SIMILARITY.
FT   DISULFID   195    246       BY SIMILARITY.
FT   DISULFID   205    248       BY SIMILARITY.
FT   CARBOHYD   131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29403 MW;  EB53F7E59C5113E4 CRC64;

  Query Match             97.1%;  Score 634;  DB 1;  Length 257;
  Best Local Similarity   97.5%;  Pred. No. 1.2e-58;
  Matches  116;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||:|||||||||||||||||||||||||||||:||||||||||||||||||
Db     139 YAEHKSHRGEYSLCDSESLWVTDKSSAIDIRGHQVTVLGEIKSGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     199 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 6
NT3_XENLA
ID   NT3_XENLA      STANDARD;      PRT;   260 AA.
AC   P25435;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF) (Nerve
DE   growth factor 2) (NGF-2).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=97252639; PubMed=9096131;
RA   Xie K., Wang T., Olafsson P., Mizuno K., Lu B.;
RT   "Activity-dependent expression of NT-3 in muscle cells in culture:
RT   implications in the development of neuromuscular junctions.";
RL   J. Neurosci. 17:2947-2958(1997).
RN   [2]
RP   SEQUENCE OF 197-217 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U27576; AAB17723.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
```

```
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    141
FT   CHAIN       142    260       NEUROTROPHIN-3.
FT   DISULFID    155    220       BY SIMILARITY.
FT   DISULFID    198    249       BY SIMILARITY.
FT   DISULFID    208    251       BY SIMILARITY.
FT   CARBOHYD    134    134       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   260 AA;  30022 MW;  FFB8507A5EA93CC5 CRC64;

  Query Match             94.8%;  Score 619;  DB 1;  Length 260;
  Best Local Similarity   94.1%;  Pred. No. 4.2e-57;
  Matches  112;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           :|||| |||||||||||||||| :|||||||||||||||||||||||||||||||||||
Db     142 FAEHKGHRGEYSVCDSESLWVTDKMNAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 201

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||:|||||||||||| ||||||||:
Db     202 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKMVGWRWIRIDTSCVCALSRKIGRS 260


RESULT 7
NGF_CHICK
ID   NGF_CHICK      STANDARD;      PRT;   243 AA.
AC   P05200;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86300646; PubMed=3017695;
RA   Ebendahl T., Larhammar D., Persson H.;
RT   "Structure and expression of the chicken beta nerve growth factor
RT   gene.";
RL   EMBO J. 5:1483-1487(1986).
RN   [2]
RP   SEQUENCE OF 118-243 FROM N.A.
RX   MEDLINE=86248129; PubMed=3720959;
RA   Wion D., Perret C., Frechin N., Keller A., Behar G., Brachet P.,
RA   Auffray C.;
RT   "Molecular cloning of the avian beta-nerve growth factor gene:
RT   transcription in brain.";
RL   FEBS Lett. 203:82-86(1986).
RN   [3]
RP   SEQUENCE OF 121-243 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
RN   [4]
RP   SEQUENCE OF 181-222 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X04003; CAA27633.1; ALT_INIT.
DR   EMBL; X04067; CAA27703.1; -.
DR   EMBL; M26810; AAA48984.1; -.
DR   PIR; A24857; A24857.
DR   PIR; A26311; A26311.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   PROPEP       23    125
FT   CHAIN       126    243       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    139    204       BY SIMILARITY.
FT   DISULFID    182    232       BY SIMILARITY.
FT   DISULFID    192    234       BY SIMILARITY.
SQ   SEQUENCE   243 AA;  27138 MW;  74C306CB2079DA07 CRC64;

  Query Match             60.1%;  Score 392.5;  DB 1;  Length 243;
  Best Local Similarity   62.5%;  Pred. No. 1.2e-33;
  Matches   70;  Conservative   18;  Mismatches   23;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :|||||:   |:  ||||:||:|:: ||| :|
Db     132 HRGEFSVCDSVSMWVGDKTTATDIKGKEVTVLGEVNINNNVFKQYFFETKCRDPRPVSSG 191

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| |  |   ||:|||||:||  |||| ||
Db     192 CRGIDAKHWNSYCTTTHTFVKALTME-GKQAAWRFIRIDTACVCVLSRKSGR 242


RESULT 8
NGF_XENLA
ID   NGF_XENLA      STANDARD;      PRT;   231 AA.
AC   P21617;
DT   01-MAY-1991 (Rel. 18, Created)
DT   15-DEC-1998 (Rel. 37, Last sequence update)
DT   15-DEC-1998 (Rel. 37, Last annotation update)
DE   Nerve growth factor precursor (NGF).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91362944; PubMed=1888511;
RA   Carriero F., Campioni M., Cardinali B., Pierandrei-Amaldi P.;
RT   "Structure and expression of the nerve growth factor gene in Xenopus
RT   oocytes and embryos.";
RL   Mol. Reprod. Dev. 29:313-322(1991).
RN   [2]
RP   SEQUENCE OF 170-211 FROM N.A.
```

```
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X55716; CAA39249.1; ALT_INIT.
DR   PIR; S14481; S14481.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    114       POTENTIAL.
FT   CHAIN      115    231       NERVE GROWTH FACTOR.
FT   DISULFID   128    193       BY SIMILARITY.
FT   DISULFID   171    221       BY SIMILARITY.
FT   DISULFID   181    223       BY SIMILARITY.
FT   CARBOHYD    63     63       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   107    107       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   158    158       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   231 AA;  26416 MW;  72A04E7D00B858C5 CRC64;

  Query Match             59.0%;  Score 385;  DB 1;  Length 231;
  Best Local Similarity   61.9%;  Pred. No. 7e-33;
  Matches   70;  Conservative   18;  Mismatches   23;  Indels    2;  Gaps    2;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           |:|||||||| |:|| :|: | ||:| :|||||||:   ||  ||||:||:|:: :|| :|
Db     121 HKGEYSVCDSVSMWVGEKTKATDIKGKEVTVLGEVNINNSVFKQYFFETKCRDPKPVSSG 180

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||| ||||| | |: |:|:||| |  |   ||:|||||:||  |||| |||
Db     181 CRGIDAKHWNSYCTTTHTFVKALTME-GKQAAWRFIRIDTACVCVLSRK-GRT 231


RESULT 9
NGF_PIG
ID   NGF_PIG        STANDARD;      PRT;   229 AA.
AC   Q29074;
DT   01-NOV-1997 (Rel. 35, Created)
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Sus scrofa (Pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX   NCBI_TaxID=9823;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Large white; TISSUE=Blood;
RX   MEDLINE=94313891; PubMed=8039422;
RA   Lahbib-Mansais Y., Mellink C., Yerle M., Gellin J.;
RT   "A new marker (NGFB) on pig chromosome 4, isolated by using a
RT   consensus sequence conserved among species.";
RL   Cytogenet. Cell Genet. 67:120-125(1994).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L31898; AAA21301.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER      1      1
FT   SIGNAL      <1      6       POTENTIAL.
FT   PROPEP       7    109       BY SIMILARITY.
FT   CHAIN      110    229       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   124    189       BY SIMILARITY.
FT   DISULFID   167    217       BY SIMILARITY.
FT   DISULFID   177    219       BY SIMILARITY.
FT   CARBOHYD    57     57       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   102    102       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   154    154       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   229 AA;  25275 MW;  FE8890771CBA3189 CRC64;

  Query Match             58.6%;  Score 382.5;  DB 1;  Length 229;
  Best Local Similarity   60.7%;  Pred. No. 1.3e-32;
  Matches   68;  Conservative   18;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||:::| ||:| :| |||:   ||  ||||:||:|::  || :|
Db     117 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 176

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  |||| ||
Db     177 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAGR 227


RESULT 10
NGF_RAT
ID   NGF_RAT        STANDARD;      PRT;   241 AA.
AC   P25427;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89037223; PubMed=3184206;
RA   Whittemore S.R., Friedman P.L., Larhammar D.G., Persson H.,
RA   Gonzalez-Carvajal M., Holets V.R.;
RT   "Rat beta-nerve growth factor sequence and site of synthesis in the
RT   adult hippocampus.";
```

```
RL   J. Neurosci. Res. 20:403-410(1988).
RN   [2]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M36589; AAA41697.1; ALT_INIT.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121       POTENTIAL.
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27009 MW;  665F42371563213D CRC64;

  Query Match             58.0%;  Score 378.5;  DB 1;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.5e-32;
  Matches   67;  Conservative   20;  Mismatches   24;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           | ||:||||| |:|| ||::| ||:| :|||||:   ||  ||||:||:|:   ||::|
Db     129 HMGEFSVCDSVSVWVGDKTTATDIKGKEVTVLGEVNINNSVFKQYFFETKCRAPNPVESG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:|||:: :|   ||:|||||:||  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTTD-DKQAAWRFIRIDTACVCVLSRKAAR 239


RESULT 11
NT4_XENLA
ID   NT4_XENLA      STANDARD;      PRT;   236 AA.
AC   P24727;
DT   01-MAR-1992 (Rel. 21, Created)
DT   01-MAR-1992 (Rel. 21, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-4 precursor (NT-4).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Ovary;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NT-4 COULD PLAY A ROLE IN OOGENESIS AND/OR EARLY
CC       EMBRYOGENESIS. NT-4 INTERACTS WITH THE LOW AFFINITY NGF RECEPTOR
CC       AND ELICITS NEURITE OUTGROWTH FROM EXPLANTED DORSAL ROOT GANGLIA
CC       WITH NO AND LOWER ACTIVITY IN SYMPATHETIC AND NODOSE GANGLIA,
CC       RESPECTIVELY.
CC   -!- TISSUE SPECIFICITY: OVARY.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z30090; CAA82906.1; -.
DR   PIR; JH0400; JH0400.
DR   HSSP; P34130; 1B98.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    113
FT   CHAIN      114    236       NEUROTROPHIN-4.
FT   DISULFID   131    196       BY SIMILARITY.
FT   DISULFID   174    225       BY SIMILARITY.
FT   DISULFID   184    227       BY SIMILARITY.
FT   CARBOHYD    47     47       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   106    106       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   236 AA;  26213 MW;  A210F97F2016357D CRC64;

  Query Match             57.9%;  Score 378;  DB 1;  Length 236;
  Best Local Similarity   59.6%;  Pred. No. 3.8e-32;
  Matches   68;  Conservative   16;  Mismatches   30;  Indels    0;  Gaps    0;

Qy       7 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKN 66
           | ||| ||||| ::|||||| :|:| ||  |||: ||:|   |:||||:||:|  :
Db     123 SRRGELSVCDSVNVWVTDKRTAVDDRGKIVTVMSEIQTLTGPLKQYFFETKCNPSGSTTR 182

Qy      67 GCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||:| | | |:||  |:|||||| : |||||||||||||:||  |  : |||
Db     183 GCRGVDKKQWISECKAKQSYVRALTIDANKLVGWRWIRIDTACVCTLLSRTGRT 236


RESULT 12
NGF_HUMAN
ID   NGF_HUMAN      STANDARD;      PRT;   241 AA.
AC   P01138;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-JAN-1990 (Rel. 13, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83244969; PubMed=6688123;
RA   Ullrich A., Gray A., Berman C., Dull T.J.;
```

```
RT   "Human beta-nerve growth factor gene sequence highly homologous to
RT   that of mouse.";
RL   Nature 303:821-825(1983).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=84206565; PubMed=6327169;
RA   Ullrich A., Gray A., Berman C., Coussens L., Dull T.J.;
RT   "Sequence homology of human and mouse beta-NGF subunit genes.";
RL   Cold Spring Harb. Symp. Quant. Biol. 48:435-442(1983).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=90326556; PubMed=2374737;
RA   Borsani G., Pizzuti A., Rugarli E.I., Falini A., Silani V.,
RA   Sidoli A., Scarlato G., Barelle F.E.;
RT   "cDNA sequence of human beta-NGF.";
RL   Nucleic Acids Res. 18:4020-4020(1990).
RN   [4]
RP   SEQUENCE OF 178-219 FROM N.A.
RC   TISSUE=Leukocyte;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V01511; CAA24755.1; -.
DR   EMBL; M21062; AAA59931.1; -.
DR   EMBL; X52599; CAA36832.1; -.
DR   PIR; A01399; NGHUBM.
DR   PIR; S10253; S10253.
DR   HSSP; P01139; 1BET.
DR   Genew; HGNC:7808; NGFB.
DR   MIM; 162030; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL       1     18       POTENTIAL.
FT   PROPEP      19    121
FT   CHAIN      122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   136    201       BY SIMILARITY.
FT   DISULFID   179    229       BY SIMILARITY.
FT   DISULFID   189    231       BY SIMILARITY.
FT   CARBOHYD    69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD   114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26987 MW;  CF1DB4DC6B736B0F CRC64;

  Query Match             57.2%;  Score 373.5;  DB 1;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 1.1e-31;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db     129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
             ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 13
NGF_BOVIN
ID   NGF_BOVIN      STANDARD;      PRT;   231 AA.
AC   P13600; O18969;
DT   01-JAN-1990 (Rel. 13, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUL-1998 (Rel. 36, Last annotation update).
DE   Beta-nerve growth factor precursor (Beta-NGF) (Fragment).
GN   NGFB.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RX   MEDLINE=97430845; PubMed=9284944;
RA   Elduque C., Laurent P., Hayes H., Rodellar C., Leveziel H.,
RA   Zaragoza P.;
RT   "Assignment of the beta-nerve growth factor (NGFB) to bovine
RT   chromosome 3 band q23 by in situ hybridization.";
RL   Cytogenet. Cell Genet. 77:306-307(1997).
RN   [2]
RP   SEQUENCE OF 107-231 FROM N.A.
RX   MEDLINE=86300647; PubMed=2427334;
RA   Meier R., Becker-Andre M., Gotz R., Heumann R., Shaw A., Thoenen H.;
RT   "Molecular cloning of bovine and chick nerve growth factor (NGF):
RT   delineation of conserved and unconserved domains and their
RT   relationship to the biological activity and antigenicity of NGF.";
RL   EMBO J. 5:1489-1493(1986).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y09566; CAA70759.1; -.
DR   EMBL; M26809; AAA30666.1; -.
DR   PIR; A26312; A26312.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   NON_TER      1      1
FT   SIGNAL      <1      8       POTENTIAL.
FT   PROPEP       9    111       BY SIMILARITY.
FT   CHAIN      112    231       BETA-NERVE GROWTH FACTOR.
FT   DISULFID   126    191       BY SIMILARITY.
FT   DISULFID   169    219       BY SIMILARITY.
FT   DISULFID   179    221       BY SIMILARITY.
FT   CARBOHYD   156    156       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT   118    118       L -> F (IN REF. 2).
FT   CONFLICT   161    161       R -> K (IN REF. 2).
```

```
FT   CONFLICT    230    231       AP -> RA (IN REF. 2).
SQ   SEQUENCE   231 AA;  25437 MW;  01605099291A418C CRC64;

  Query Match             57.0%;  Score 372.5;  DB 1;  Length 231;
  Best Local Similarity   58.9%;  Pred. No. 1.4e-31;
  Matches   66;  Conservative   20;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| ||||:   ||  :|||:||:|::  || :|
Db     119 HRGEFSVCDSISVWVGDKTTATDIKGKEVMVLGEVNINNSVFRQYFFETKCRDPNPVDSG 178

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:||||||:||  |||| |:
Db     179 CRGIDAKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKTGQ 229


RESULT 14
NGF_CAVPO
ID   NGF_CAVPO      STANDARD;      PRT;   241 AA.
AC   P19093;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Prostate;
RX   MEDLINE=89177243; PubMed=2926397;
RA   Schwarz M.A., Fisher D., Bradshaw R.A., Isackson P.J.;
RT   "Isolation and sequence of a cDNA clone of beta-nerve growth factor
RT   from the guinea pig prostate gland.";
RL   J. Neurochem. 52:1203-1209(1989).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
DR   PIR; JL0097; JL0097.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  26821 MW;  2F4E26B197804BF4 CRC64;

  Query Match             56.9%;  Score 371.5;  DB 1;  Length 241;
  Best Local Similarity   58.0%;  Pred. No. 1.9e-31;
  Matches   65;  Conservative   20;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           | ||:||||| |:|| ||::| ||:| :|||| |:   |:  ||||:||:|::  || :|
Db     129 HMGEFSVCDSVSVWVADKTTATDIKGKEVTVLAEVNVNNNVFKQYFFETKCRDPSPVDSG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:|||:  ||   ||:||||||:||  |:||  |

Db     189 CRGIDSKHWNSYCTTTHTFVKALTTA-NKQAAWRFIRIDTACVCVLNRKAAR 239


RESULT 15
NGF_PRANA
ID   NGF_PRANA      STANDARD;      PRT;   241 AA.
AC   P20675;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   01-NOV-1997 (Rel. 35, Last annotation update)
DE   Beta-nerve growth factor precursor (Beta-NGF).
GN   NGFB.
OS   Praomys natalensis (African soft-furred rat) (Mastomys natalensis).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC   Mastomys.
OX   NCBI_TaxID=10112;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89172070; PubMed=3234767;
RA   Fahnestock M., Bell R.A.;
RT   "Molecular cloning of a cDNA encoding the nerve growth factor
RT   precursor from Mastomys natalensis.";
RL   Gene 69:257-264(1988).
CC   -!- FUNCTION: NERVE GROWTH FACTOR IS IMPORTANT FOR THE DEVELOPMENT AND
CC       MAINTENANCE OF THE SYMPATHETIC AND SENSORY NERVOUS SYSTEMS. IT
CC       STIMULATES DIVISION AND DIFFERENTIATION OF SYMPATHETIC AND
CC       EMBRYONIC SENSORY NEURONS.
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; M22748; AAA40599.1; ALT_INIT.
DR   PIR; JT0343; NGRTBA.
DR   HSSP; P01139; 1BTG.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    121
FT   CHAIN       122    241       BETA-NERVE GROWTH FACTOR.
FT   DISULFID    136    201       BY SIMILARITY.
FT   DISULFID    179    229       BY SIMILARITY.
FT   DISULFID    189    231       BY SIMILARITY.
FT   CARBOHYD     69     69       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    114    114       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    166    166       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   241 AA;  27035 MW;  8BFBB207A1FFB2F7 CRC64;

  Query Match             56.7%;  Score 370;  DB 1;  Length 241;
  Best Local Similarity   54.0%;  Pred. No. 2.7e-31;
  Matches   67;  Conservative   24;  Mismatches   23;  Indels   10;  Gaps    2;

Qy       5 HKSHR---------GEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYE 55
           |:| |         ||:||||| |:|| ||::| ||:|::|||||:   ||  ||||:|
Db     117 HRSKRSSTHPVFQMGEFSVCDSVSVWVGDKTTATDIKGNEVTVLGEVNINNSVFKQYFFE 176

Qy      56 TRCKEARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSR 115
           |:|:   ||::|||||| ||||| | |: |:|:|||:: :   ||:|||||:||  |:|
Db     177 TKCRARNPVESGCRGIDSKHWNSYCTTTHTFVKALTTDDRQ-AAWRFIRIDTACVCVLTR 235
```

Qy 116 KIGR 119
Db 236 KAPR 239

Search completed: December 2, 2002, 15:12:44
Job time : 5.9238 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 18.5698 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	583	89.3	241	6	Q9N182	Q9n182 macaca fusc
2	373.5	57.2	241	4	Q9P2Q8	Q9p2q8 homo sapien
3	373.5	57.2	241	4	Q9UKL8	Q9ukl8 homo sapien
4	373.5	57.2	241	6	Q9N2F1	Q9n2f1 pan troglod
5	373.5	57.2	241	6	Q9N2F0	Q9n2f0 gorilla gor
6	373.5	57.2	241	6	Q9N2E9	Q9n2e9 pongo pygma
7	370.5	56.7	241	4	Q96P60	Q96p60 homo sapien
8	356	54.5	177	13	Q9I8L2	Q9i8l2 poephila gu
9	355	54.4	246	13	Q8QG76	Q8qg76 japalura sp
10	354	54.2	153	11	Q9CYL3	Q9cyl3 mus musculu
11	354	54.2	241	13	Q90W38	Q90w38 bothrops ja
12	354	54.2	247	6	O97759	O97759 ailurus ful
13	354	54.2	249	11	Q8VHH4	Q8vhh4 mus musculu
14	352	53.9	246	13	Q8QG74	Q8qg74 cyclophiops
15	351	53.8	246	13	Q8QG75	Q8qg75 phrynocepha
16	350	53.6	241	13	Q9DEZ9	Q9dez9 crotalus du
17	344	52.7	270	13	Q9YH42	Q9yh42 brachydanio
18	341.5	52.3	217	6	Q9N183	Q9n183 macaca fusc
19	336.5	51.5	294	11	Q91XB4	Q91xb4 mus musculu
20	334	51.1	247	13	Q8QG77	Q8qg77 tylototrito
21	324.5	49.7	324	13	Q9XY95	Q9xy95 lampetra fl
22	324	49.6	101	6	Q9TT22	Q9tt22 macaca fusc
23	276	42.3	87	4	Q9P2Z4	Q9p2z4 homo sapien
24	274.5	42.0	87	6	Q9TTC3	Q9ttc3 cervus elap
25	266	40.7	286	13	Q91988	Q91988 xiphophorus
26	247	37.8	85	6	O13114	O13114 isoodon mac
27	247	37.8	85	6	O13122	O13122 tarsipes ro
28	247	37.8	85	6	O02795	O02795 ornithorhyn
29	247	37.8	85	6	O02798	O02798 petaurus br
30	247	37.8	85	6	O13104	O13104 cercartetus
31	247	37.8	85	6	O02790	O02790 macropus fu
32	247	37.8	85	6	O13105	O13105 dasyuroides
33	247	37.8	85	6	O02801	O02801 tachyglossu
34	246	37.7	85	6	O02803	O02803 trichosurus
35	242	37.1	85	6	O02792	O02792 notoryctes
36	226.5	34.7	186	12	Q9J5D9	Q9j5d9 fowlpox vir
37	210	32.2	43	13	O13117	O13117 protopterus
38	169	25.9	185	6	Q9BFK7	Q9bfk7 erinaceus c
39	166	25.4	185	11	Q99NV9	Q99nv9 pedetes cap
40	165	25.3	184	6	Q9BFJ5	Q9bfj5 tupaia mino
41	165	25.3	185	6	Q9BFK6	Q9bfk6 talpa altai
42	165	25.3	185	6	Q9BFK5	Q9bfk5 condylura c
43	165	25.3	186	6	Q9BFL3	Q9bfl3 choloepus h
44	165	25.3	186	6	Q9BFL2	Q9bfl2 choloepus d
45	165	25.3	186	6	Q9BFK9	Q9bfk9 tamandua te

ALIGNMENTS

RESULT 1
Q9N182
ID Q9N182 PRELIMINARY; PRT; 241 AA.
AC Q9N182;
DT 01-OCT-2000 (TrEMBLrel. 15, Created)
DT 01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Neurotrophin-3 (Fragment).
OS Macaca fuscata (Japanese macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC Cercopithecinae; Macaca.
OX NCBI_TaxID=9542;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=BLOOD;
RX MEDLINE=99270338; PubMed=10340513;
RA Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT visual and limbic areas along the occipito-temporo-hippocampal pathway
RT in adult macaque monkeys.";
RL J. Comp. Neurol. 408:378-398(1999).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=BLOOD;
RA Hashimoto T., Okuno H., Tokuyama W., Li Y.X., Miyashita Y.;
RT "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT their receptor messenger RNAs in monkey rhinal cortex.";
RL Neuroscience 0:0-0(2000).
DR EMBL; AF222683; AAF33791.1; -.
DR HSSP; P20783; 1B8K.
DR InterPro; IPR002072; NGF.
DR Pfam; PF00243; NGF; 1.
DR PRINTS; PR00268; NGF.
DR ProDom; PD002052; NGF; 1.
DR SMART; SM00140; NGF; 1.
DR PROSITE; PS00248; NGF_1; 1.
DR PROSITE; PS50270; NGF_2; 1.
FT NON_TER 1 1

```
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  27803 MW;  AB95E457C7B07113 CRC64;

  Query Match             89.3%;  Score 583;  DB 6;  Length 241;
  Best Local Similarity   100.0%;  Pred. No. 7.5e-58;
  Matches  106;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    136 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 195

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDT 107
          |||||||||||||||||||||||||||||||||||||||||||||
Db    196 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDT 241


RESULT 2
Q9P2Q8
ID   Q9P2Q8      PRELIMINARY;      PRT;   241 AA.
AC   Q9P2Q8;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037517; BAA90437.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26998 MW;  D5531ED825D96C14 CRC64;

  Query Match             57.2%;  Score 373.5;  DB 4;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.8e-34;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy      8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
          ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db    129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188

Qy     68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
          ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  |||| |
Db    189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 3
Q9UKL8
ID   Q9UKL8      PRELIMINARY;      PRT;   241 AA.
AC   Q9UKL8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor B.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99256269; PubMed=10322959;
RA   Tong Y., Wang H., Chen W.;
RT   "Cloning and sequencing of the gene for premature beta nerve growth
RT   factor.";
RL   Chung Kuo Ying Yung Sheng Li Hsueh Tsa Chih 13:316-318(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Tong Y., Wang H.;
RL   Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF150960; AAD55975.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26959 MW;  619DFC65EB3BD671 CRC64;

  Query Match             57.2%;  Score 373.5;  DB 4;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.8e-34;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy      8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
          ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db    129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188

Qy     68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
          ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  |||| |
Db    189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 4
Q9N2F1
ID   Q9N2F1      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CHIMP-220;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037518; BAA90438.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26868 MW;  B39FAA8912C00A0B CRC64;

  Query Match             57.2%;  Score 373.5;  DB 6;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.8e-34;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy      8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
          ||||:||||| |:|| ||::| ||:| :| ||||:   ||  ||||:||:|::  || :|
Db    129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188
```

```
Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 5
Q9N2F0
ID   Q9N2F0      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F0;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Gorilla gorilla (gorilla).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Gorilla.
OX   NCBI_TaxID=9593;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=GORILLA-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037519; BAA90439.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26915 MW;  6F54D163C384BB34 CRC64;

  Query Match             57.2%;  Score 373.5;  DB 6;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.8e-34;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| |||||:   ||  ||||:||:|::  || :|
Db     129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 6
Q9N2E9
ID   Q9N2E9      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2E9;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pongo pygmaeus (Orangutan).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pongo.
OX   NCBI_TaxID=9600;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=ORAN-U1;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037520; BAA90440.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26876 MW;  DFC168E7E4E01F15 CRC64;

  Query Match             57.2%;  Score 373.5;  DB 6;  Length 241;
  Best Local Similarity   59.8%;  Pred. No. 3.8e-34;
  Matches   67;  Conservative   18;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| |||||:   ||  ||||:||:|::  || :|
Db     129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVNINNSVFKQYFFETKCRDPNPVDSG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:||  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACVCVLSRKAVR 239


RESULT 7
Q96P60
ID   Q96P60      PRELIMINARY;      PRT;   241 AA.
AC   Q96P60;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor beta.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhang Y., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF411526; AAL05874.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26964 MW;  745216485C21E558 CRC64;

  Query Match             56.7%;  Score 370.5;  DB 4;  Length 241;
  Best Local Similarity   58.9%;  Pred. No. 8.4e-34;
  Matches   66;  Conservative   19;  Mismatches   26;  Indels    1;  Gaps    1;

Qy       8 HRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPVKNG 67
           ||||:||||| |:|| ||::| ||:| :| |||||:   ||  ||||:||:|::  || :|
Db     129 HRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEVSINNSVFKQYFFETKCRDPNPVDSG 188

Qy      68 CRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           ||||| ||||| | |: |:|:||| :  |   ||:|||||:|:  ||||  |
Db     189 CRGIDSKHWNSYCTTTHTFVKALTMD-GKQAAWRFIRIDTACMCVLSRKAVR 239


RESULT 8
Q9I8L2
ID   Q9I8L2      PRELIMINARY;      PRT;   177 AA.
AC   Q9I8L2;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   BDNF (Fragment).
OS   Poephila guttata (Zebra finch) (Taeniopygia guttata).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Passeriformes; Estrildidae;
OC   Estrildinae; Taeniopygia.
OX   NCBI_TaxID=59729;
RN   [1]
RP   SEQUENCE FROM N.A.
```

```
RX   MEDLINE=20193595; PubMed=10727739;
RA   Johnson F., Norstrom E., Soderstrom K.;
RT   "Increased expression of endogenous biotin, but not BDNF, in
RT   telencephalic song regions during zebra finch vocal learning.";
RL   Brain Res. Dev. Brain Res. 120:113-123(2000).
DR   EMBL; AF255389; AAF78050.2; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   177 AA;  20273 MW;  BDB9031515BD369D CRC64;

  Query Match             54.5%;  Score 356;  DB 13;  Length 177;
  Best Local Similarity   58.3%;  Pred. No. 2.5e-32;
  Matches   67;  Conservative   16;  Mismatches   30;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  :| :|:|: |  |||| ::      :|||||||:|
Db      63 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNPKGYT 122

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| :|||||:|:|:|:|||||| :| | ||||:|||||||  |: | ||
Db     123 KEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 177


RESULT 9
Q8QG76
ID   Q8QG76      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG76;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Japalura splendida.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Draconinae;
OC   Japalura.
OX   NCBI_TaxID=118209;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497713; AAM18714.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27883 MW;  47B1A03DA838FD78 CRC64;

  Query Match             54.4%;  Score 355;  DB 13;  Length 246;
  Best Local Similarity   57.4%;  Pred. No. 4.9e-32;
  Matches   66;  Conservative   18;  Mismatches   29;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : |||:||||| | |||  :| :|:|: |  |||| ::      :|||||||:|
Db     132 ARRGEFSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNSKGYT 191

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| ::||||||:|:|:|:|||||| :| | ||||:|||||||  |: | ||
Db     192 KEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 246


RESULT 10
Q9CYL3
ID   Q9CYL3      PRELIMINARY;      PRT;   153 AA.
AC   Q9CYL3;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=EMBRYO;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK017559; BAB30805.1; -.
DR   HSSP; P23560; 1B8M.
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   153 AA;  17519 MW;  CA8EB8944CEE5B37 CRC64;

  Query Match             54.2%;  Score 354;  DB 11;  Length 153;
  Best Local Similarity   57.4%;  Pred. No. 3.5e-32;
  Matches   66;  Conservative   17;  Mismatches   30;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db      39 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 98

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| :||||||:|:|:|||||| :: | :|||:|||||||  |: | ||
Db      99 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 153


RESULT 11
Q90W38
ID   Q90W38      PRELIMINARY;      PRT;   241 AA.
AC   Q90W38;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Putative neurotrophic growth factor.
GN   NGF.
OS   Bothrops jararacussu (Jararacussu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Viperidae; Crotalinae; Bothrops.
OX   NCBI_TaxID=8726;
RN   [1]
```

```
RP   SEQUENCE FROM N.A.
RC   TISSUE=VENOM GLAND;
RA   Kashima S., Pereira J.O., Astolfi Filho S., Soares A.M.,
RA   Cintra A.C.O., Giglio J.R., Franca S.C.;
RT   "Molecular cloning and cDNA sequence of a nerve growth factor
RT   precursor from Bothrops jararacussu venomous gland.";
RL   Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AY007318; AAG12169.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  27161 MW;  AC57F724A6531A8F CRC64;

  Query Match             54.2%;  Score 354;  DB 13;  Length 241;
  Best Local Similarity   55.3%;  Pred. No. 6.2e-32;
  Matches   63;  Conservative   22;  Mismatches   27;  Indels    2;  Gaps    2;

Qy       4 EHKSH-RGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEAR 62
           :|  | |||||||||| ::|| :|::| |||| ||| :: |: ||||:||:|:
Db     124 DHPVHNRGEYSVCDSVNVWVANKTTATDIRGNVVTVMVDVNINNNVYKQYFFETKCRNPN 183

Qy      63 PVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRK 116
           ||  |||||| :|||| | |: |:|:|:||| | |:   ||:|||||:||  :|||
Db     184 PVPTGCRGIDARHWNSYCTTTNTFVKALTMEGNQ-ASWRFIRIDTACVCVISRK 236


RESULT 12
O97759
ID   O97759      PRELIMINARY;      PRT;   247 AA.
AC   O97759;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Ailurus fulgens (Lesser panda).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Procyonidae; Ailurus.
OX   NCBI_TaxID=9649;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Feng L.;
RT   "Giant Panda (GP) and Lesser Panda (LP) BDNF gene sequences and their
RT   deduced amino acid sequences.";
RL   Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U56639; AAD10843.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   247 AA;  27870 MW;  FE8C62CF1A6C03EE CRC64;

  Query Match             54.2%;  Score 354;  DB 6;  Length 247;
  Best Local Similarity   57.4%;  Pred. No. 6.4e-32;
  Matches   66;  Conservative   17;  Mismatches   30;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 192

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| :||||||:|:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     193 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 247


RESULT 13
Q8VHH4
ID   Q8VHH4      PRELIMINARY;      PRT;   249 AA.
AC   Q8VHH4;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Anorexia BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=B6C3FE-A/A-ANXA/+A;
RA   Kim S.J., Kim C.S., Cha Y.J., Song K.Y., Yeo M.G.;
RT   "Anorexia mouse ORF BDNF.";
RL   Submitted (DEC-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF459642; AAL58475.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   249 AA;  28109 MW;  21CEAEA60A235D97 CRC64;

  Query Match             54.2%;  Score 354;  DB 11;  Length 249;
  Best Local Similarity   57.4%;  Pred. No. 6.5e-32;
  Matches   66;  Conservative   17;  Mismatches   30;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  || :|:|: |  |||| ::      :|||||||:|
Db     135 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQLKQYFYETKCNPMGYT 194

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| :||||||:|:|:|:|||||| :: | :|||:||||||||  |: | ||
Db     195 KEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIKRGR 249


RESULT 14
Q8QG74
ID   Q8QG74      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG74;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Cyclophiops major.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Colubridae; Colubrinae; Cyclophiops.
OX   NCBI_TaxID=192173;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497715; AAM18716.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27773 MW;  BA01780349F37856 CRC64;

  Query Match             53.9%;  Score 352;  DB 13;  Length 246;
  Best Local Similarity   57.4%;  Pred. No. 1.1e-31;
  Matches   66;  Conservative   18;  Mismatches   29;  Indels    2;  Gaps    1;

Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  :| :|:|: |  |||| ::      :|||||||:|
Db     132 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCSTKGYA 191
```

```
Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| ::|||||:|:|:||||||::| | ||||:||||||||  |: | ||
Db     192 KEGCRGIDKRYWNSQCRTTQSYVRALTTDNKKRVGWRFIRIDTSCVCTLTIKRGR 246
```

RESULT 15
Q8QG75
ID Q8QG75 PRELIMINARY; PRT; 246 AA.
AC Q8QG75;
DT 01-JUN-2002 (TrEMBLrel. 21, Created)
DT 01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT 01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE Brain derived neurotrophic factor.
GN BDNF.
OS Phrynocephalus hongyuanensis.
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Agaminae;
OC Phrynocephalus.
OX NCBI_TaxID=171648;
RN [1]
RP SEQUENCE FROM N.A.
RA Cao M., Yang Y.H., Zhang Y.Z.;
RT "Molecular cloning of brain derived neurotrophic factor gene from
RT amphibians and reptiles and its application in the research of
RT phylogeny and taxonomy.";
RL Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF497714; AAM18715.1; -.
FT CHAIN 128 246 BRAIN DERIVED NEUROTROPHIC FACTOR
FT   PRECURSOR.
SQ SEQUENCE 246 AA; 27792 MW; 7709D3058B7AFA30 CRC64;

  Query Match 53.8%; Score 351; DB 13; Length 246;
  Best Local Similarity 57.4%; Pred. No. 1.4e-31;
  Matches 66; Conservative 17; Mismatches 30; Indels 2; Gaps 1;

```
Qy       7 SHRGEYSVCDSESLWVT--DKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEARPV 64
           : ||| ||||| | |||  :| :|:|: |  |||| ::      :|||||||:|
Db     132 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQLKQYFYETKCNSKGYT 191

Qy      65 KNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGR 119
           | |||||| ::|||||:|:|:|||||| :| | ||||:|||||||  |: | ||
Db     192 KEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIKRGR 246
```

Search completed: December 2, 2002, 15:12:02
Job time : 18.5698 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 8.30012 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	653	100.0	120	4	US-09-675-503-5	Sequence 5, Appli
2	646	98.9	119	3	US-08-970-865-5	Sequence 5, Appli
3	646	98.9	119	3	US-08-581-662-2	Sequence 2, Appli
4	646	98.9	119	4	US-09-363-573-5	Sequence 5, Appli
5	646	98.9	119	4	US-09-664-295-2	Sequence 2, Appli
6	641	98.2	119	1	US-07-979-630-3	Sequence 3, Appli
7	641	98.2	119	1	US-08-440-049-2	Sequence 2, Appli
8	641	98.2	119	1	US-08-340-131-3	Sequence 3, Appli
9	641	98.2	119	2	US-08-441-513A-2	Sequence 2, Appli
10	641	98.2	119	3	US-08-910-691-12	Sequence 12, Appl
11	641	98.2	119	4	US-08-845-541B-2	Sequence 2, Appli
12	641	98.2	119	4	US-09-066-065A-2	Sequence 2, Appli
13	641	98.2	119	5	PCT-US93-11292-3	Sequence 3, Appli
14	641	98.2	119	5	PCT-US95-06918-2	Sequence 2, Appli
15	641	98.2	119	5	PCT-US95-06918-5	Sequence 5, Appli
16	641	98.2	120	1	US-08-340-131-4	Sequence 4, Appli
17	641	98.2	120	4	US-09-214-214A-1	Sequence 1, Appli
18	641	98.2	120	4	US-09-255-953-1	Sequence 1, Appli
19	641	98.2	120	4	US-09-872-090-1	Sequence 1, Appli
20	641	98.2	240	3	US-08-910-691-11	Sequence 11, Appl
21	641	98.2	257	1	US-08-451-947-4	Sequence 4, Appli
22	641	98.2	257	2	US-08-424-826A-4	Sequence 4, Appli
23	641	98.2	257	3	US-08-910-691-7	Sequence 7, Appli
24	641	98.2	257	3	US-08-928-694-4	Sequence 4, Appli
25	641	98.2	257	5	PCT-US91-06950-4	Sequence 4, Appli
26	629	96.3	119	4	US-09-214-214A-6	Sequence 6, Appli
27	629	96.3	119	4	US-09-255-953-6	Sequence 6, Appli
28	629	96.3	119	4	US-09-872-090-6	Sequence 6, Appli
29	629	96.3	120	4	US-09-214-214A-3	Sequence 3, Appli
30	629	96.3	120	4	US-09-255-953-3	Sequence 3, Appli
31	629	96.3	120	4	US-09-872-090-3	Sequence 3, Appli
32	619	94.8	117	4	US-09-214-214A-7	Sequence 7, Appli
33	619	94.8	117	4	US-09-255-953-7	Sequence 7, Appli
34	619	94.8	117	4	US-09-872-090-7	Sequence 7, Appli
35	619	94.8	118	4	US-09-214-214A-5	Sequence 5, Appli
36	619	94.8	118	4	US-09-255-953-5	Sequence 5, Appli
37	619	94.8	118	4	US-09-872-090-5	Sequence 5, Appli
38	613	93.9	120	3	US-08-581-662-32	Sequence 32, Appl
39	613	93.9	120	4	US-09-664-295-32	Sequence 32, Appl
40	416.5	63.8	120	4	US-08-845-541B-9	Sequence 9, Appli
41	416.5	63.8	120	4	US-09-066-065A-9	Sequence 9, Appli
42	411.5	63.0	120	4	US-08-845-541B-7	Sequence 7, Appli
43	411.5	63.0	120	4	US-09-066-065A-7	Sequence 7, Appli
44	408.5	62.6	120	4	US-08-845-541B-8	Sequence 8, Appli
45	408.5	62.6	120	4	US-09-066-065A-8	Sequence 8, Appli

ALIGNMENTS

RESULT 1
US-09-675-503-5
; Sequence 5, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: ISOLATION OF NEUROTROPHINS FROM A
; TITLE OF INVENTION: MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
; TITLE OF INVENTION: USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
; FILE REFERENCE: GENENT.037C2
; CURRENT APPLICATION NUMBER: US/09/675,503
; CURRENT FILING DATE: 2000-09-29
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
; LENGTH: 120
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-675-503-5

Query Match 100.0%; Score 653; DB 4; Length 120;
Best Local Similarity 100.0%; Pred. No. 3.4e-70;
Matches 120; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 PYAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKE 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PYAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKE 60

Qy      61 ARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
```

RESULT 2
US-08-970-865-5
; Sequence 5, Application US/08970865
; Patent No. 6005081
; GENERAL INFORMATION:
; APPLICANT: Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
; TITLE OF INVENTION: Purification of NGF

```
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-5

  Query Match             98.9%;  Score 646;  DB 3;  Length 119;
  Best Local Similarity   100.0%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy       62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
            |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119


RESULT 3
US-08-581-662-2
; Sequence 2, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 2
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-2

  Query Match             98.9%;  Score 646;  DB 3;  Length 119;
  Best Local Similarity   100.0%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy       62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
            |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119


RESULT 4
US-09-363-573-5
; Sequence 5, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-5

  Query Match             98.9%;  Score 646;  DB 4;  Length 119;
  Best Local Similarity   100.0%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy        2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
            ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy       62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
            |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119


RESULT 5
US-09-664-295-2
; Sequence 2, Application US/09664295
; Patent No. 6429196
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
```

```
;  FILE REFERENCE: GENENT.051C1
;  CURRENT APPLICATION NUMBER: US/09/664,295
;  CURRENT FILING DATE:  2000-09-18
;  PRIOR APPLICATION NUMBER: US 08/581,662
;  PRIOR FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 37
; SEQ ID NO 2
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-664-295-2

  Query Match             98.9%;  Score 646;  DB 4;  Length 119;
  Best Local Similarity   100.0%;  Pred. No. 2.3e-69;
  Matches  119;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 119


RESULT 6
US-07-979-630-3
; Sequence 3, Application US/07979630
; Patent No. 5488099
;  GENERAL INFORMATION:
;    APPLICANT:  Persson, et al.
;    TITLE OF INVENTION:  Multifunctional Neurotrophic Factors
;    NUMBER OF SEQUENCES:  3
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Regeneron Pharmaceuticals, Inc.
;      STREET:  777 Old Saw Mill River Road
;      CITY:  Tarrytown
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10591
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/07/979,630
;      FILING DATE:  20-NOV-1992
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/847,369
;      FILING DATE:  06-MAR-1992
;      NAME:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Kempler Ph.D., Gail M.
;      REGISTRATION NUMBER:  32,143
;      REFERENCE/DOCKET NUMBER:  REG 41
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  914-347-7000
;      TELEFAX:  914-347-2113
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  unknown
;      TOPOLOGY:  unknown
;    MOLECULE TYPE:  protein
US-07-979-630-3

  Query Match             98.2%;  Score 641;  DB 1;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119
          ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 7
US-08-440-049-2
; Sequence 2, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-2

  Query Match             98.2%;  Score 641;  DB 1;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119
          ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 8
US-08-340-131-3
; Sequence 3, Application US/08340131
; Patent No. 5770577
;  GENERAL INFORMATION:
;    APPLICANT:  Kinstler, Olaf B
;    APPLICANT:  Yan, Qiao
```

```
;    TITLE OF INVENTION:  DERIVATIVES OF BDNF AND NT-3
;    NUMBER OF SEQUENCES:  4
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Amgen Inc.
;      STREET:  1840 Dehavilland Drive
;      CITY:  Thousand Oaks
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  91320-1789
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/340,131
;      FILING DATE:
;      CLASSIFICATION:  530
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Mazza, Richard J.
;      REFERENCE/DOCKET NUMBER:  A-298
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-340-131-3

  Query Match             98.2%;  Score 641;  DB 1;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 9
US-08-441-513A-2
; Sequence 2, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-441-513A-2

  Query Match             98.2%;  Score 641;  DB 2;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 10
US-08-910-691-12
; Sequence 12, Application US/08910691
; Patent No. 6015552
;  GENERAL INFORMATION:
;    APPLICANT:  WATANABE, Tatsuya
;    APPLICANT:  YOSHITOMI, Sumie
;    APPLICANT:  SASADA, Reiko
;    TITLE OF INVENTION:  THERAPEUTIC AGENT FOR NEUTROPENIA
;    NUMBER OF SEQUENCES:  12
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS &
;      ADDRESSEE:  CUSHMAN
;      STREET:  130 Water Street
;      CITY:  Boston
;      STATE:  Massachusetts
;      COUNTRY:  US
;      ZIP:  02109
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/910,691
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/074,969
;      FILING DATE:  19930604
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  NEUNER, George W
;      REGISTRATION NUMBER:  26964
;      REFERENCE/DOCKET NUMBER:  12345
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)523-3400
;      TELEFAX:  (617)523-6440
;      TELEX:  200291 STRE UR
;  INFORMATION FOR SEQ ID NO:  12:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
US-08-910-691-12

  Query Match             98.2%;  Score 641;  DB 3;  Length 119;
```

```
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 11
US-08-845-541B-2
; Sequence 2, Application US/08845541B
; Patent No. 6333310
; GENERAL INFORMATION:
;  APPLICANT: Presta, Leonard
;  APPLICANT:  Urfer, Roman
;  APPLICANT:  Winslow, John
;  TITLE OF INVENTION: NGF VARIANTS
;  FILE REFERENCE: GENENT.039A
;  CURRENT APPLICATION NUMBER: US/08/845,541B
;  CURRENT FILING DATE:  1999-04-25
;  NUMBER OF SEQ ID NOS: 38
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: homo sapien
US-08-845-541B-2

  Query Match             98.2%;  Score 641;  DB 4;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 12
US-09-066-065A-2
; Sequence 2, Application US/09066065A
; Patent No. 6365373
;  GENERAL INFORMATION:
;    APPLICANT:  Leonard G. Presta, Roman Urfer, John W. Winslow
;    TITLE OF INVENTION:  NGF Variants
;    NUMBER OF SEQUENCES:  21
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/066,065A
;      FILING DATE:  24-Apr-1998
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/044918
;      FILING DATE:  25-APR-1999
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1098R1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-066-065A-2

  Query Match             98.2%;  Score 641;  DB 4;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
          |||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db     61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 13
PCT-US93-11292-3
; Sequence 3, Application PC/TUS9311292
;  GENERAL INFORMATION:
;    APPLICANT:  Persson, et al.
;    TITLE OF INVENTION:  Multifunctional Neurotrophic Factors
;    NUMBER OF SEQUENCES:  3
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Regeneron Pharmaceuticals, Inc.
;      STREET:  777 Old Saw Mill River Road
;      CITY:  Tarrytown
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10591
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US93/11292
;      FILING DATE:  19-NOV-1993
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/847,369
;      FILING DATE:  06-MAR-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Kempler Ph.D., Gail M.
;      REGISTRATION NUMBER:  32,143
;      REFERENCE/DOCKET NUMBER:  REG 41
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  914-347-7000
;      TELEFAX:  914-347-2113
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  unknown
;      TOPOLOGY:  unknown
;    MOLECULE TYPE:  protein
PCT-US93-11292-3

  Query Match             98.2%;  Score 641;  DB 5;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
```

```
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 14
PCT-US95-06918-2
; Sequence 2, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-2

  Query Match             98.2%;  Score 641;  DB 5;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 15
PCT-US95-06918-5
; Sequence 5, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  119 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-5

  Query Match             98.2%;  Score 641;  DB 5;  Length 119;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-69;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      61 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


Search completed: December  2, 2002, 15:09:44
Job time : 9.30012 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 4.2204 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-5
Perfect score: 653
Sequence: 1 PYAEHKSHRGEYSVCDSESL.....RWIRIDTSCVSALSRKIGRT 120

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	653	100.0	120	12	US-10-072-681-5	Sequence 5, Appli
2	641	98.2	120	10	US-09-745-032-1	Sequence 1, Appli
3	641	98.2	120	10	US-09-742-600-1	Sequence 1, Appli
4	641	98.2	120	10	US-09-872-090-1	Sequence 1, Appli
5	641	98.2	257	8	US-08-450-842-4	Sequence 4, Appli
6	629	96.3	119	10	US-09-745-032-6	Sequence 6, Appli
7	629	96.3	119	10	US-09-742-600-6	Sequence 6, Appli
8	629	96.3	119	10	US-09-872-090-6	Sequence 6, Appli
9	629	96.3	120	10	US-09-745-032-3	Sequence 3, Appli
10	629	96.3	120	10	US-09-742-600-3	Sequence 3, Appli
11	629	96.3	120	10	US-09-872-090-3	Sequence 3, Appli
12	619	94.8	117	10	US-09-745-032-7	Sequence 7, Appli
13	619	94.8	117	10	US-09-742-600-7	Sequence 7, Appli
14	619	94.8	117	10	US-09-872-090-7	Sequence 7, Appli
15	619	94.8	118	10	US-09-745-032-5	Sequence 5, Appli
16	619	94.8	118	10	US-09-742-600-5	Sequence 5, Appli
17	619	94.8	118	10	US-09-872-090-5	Sequence 5, Appli
18	609	93.3	120	9	US-09-813-398-11	Sequence 11, Appl
19	385	59.0	71	10	US-09-848-664-23	Sequence 23, Appl
20	373.5	57.2	153	10	US-09-798-338-2	Sequence 2, Appli
21	373.5	57.2	157	10	US-09-798-338-4	Sequence 4, Appli
22	373.5	57.2	163	10	US-09-798-338-6	Sequence 6, Appli
23	373.5	57.2	167	10	US-09-798-338-8	Sequence 8, Appli
24	373.5	57.2	241	8	US-08-450-842-5	Sequence 5, Appli
25	373.5	57.2	241	10	US-09-822-263-16	Sequence 16, Appl
26	373.5	57.2	242	12	US-10-072-681-1	Sequence 1, Appli
27	371	56.8	121	12	US-10-072-681-2	Sequence 2, Appli
28	368.5	56.4	121	12	US-10-072-681-3	Sequence 3, Appli
29	365	55.9	121	9	US-09-813-398-9	Sequence 9, Appli
30	359	55.0	120	10	US-09-745-032-10	Sequence 10, Appl
31	359	55.0	120	10	US-09-742-600-10	Sequence 10, Appl
32	354	54.2	120	10	US-09-745-032-8	Sequence 8, Appli
33	354	54.2	120	10	US-09-745-032-9	Sequence 9, Appli
34	354	54.2	120	10	US-09-742-600-8	Sequence 8, Appli
35	354	54.2	120	10	US-09-742-600-9	Sequence 9, Appli
36	354	54.2	247	8	US-08-450-842-3	Sequence 3, Appli
37	351.5	53.8	142	8	US-08-450-842-52	Sequence 52, Appl
38	351	53.8	130	8	US-08-450-842-23	Sequence 23, Appl
39	350	53.6	130	8	US-08-450-842-22	Sequence 22, Appl
40	350	53.6	131	9	US-09-813-398-12	Sequence 12, Appl
41	350	53.6	168	8	US-08-450-842-6	Sequence 6, Appli
42	350	53.6	210	8	US-08-450-842-2	Sequence 2, Appli
43	349	53.4	130	8	US-08-450-842-62	Sequence 62, Appl
44	348	53.3	130	8	US-08-450-842-64	Sequence 64, Appl
45	348	53.3	130	12	US-10-072-681-6	Sequence 6, Appli

ALIGNMENTS

```
RESULT 1
US-10-072-681-5
; Sequence 5, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
;  APPLICANT: Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION: PURIFICATION OF NGF
;  FILE REFERENCE: GENENT.037C3
;  CURRENT APPLICATION NUMBER: US/10/072,681
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: 60/030838
;  PRIOR FILING DATE: 1996-11-15
;  PRIOR APPLICATION NUMBER: 60/047855
;  PRIOR FILING DATE: 1997-05-29
;  PRIOR APPLICATION NUMBER: 08/970865
;  PRIOR FILING DATE: 1997-11-14
;  PRIOR APPLICATION NUMBER: 09/363573
;  PRIOR FILING DATE: 1999-07-29
;  PRIOR APPLICATION NUMBER: 09/675,503
;  PRIOR FILING DATE: 2000-09-29
;  NUMBER OF SEQ ID NOS: 6
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-10-072-681-5

  Query Match             100.0%;  Score 653;  DB 12;  Length 120;
  Best Local Similarity   100.0%;  Pred. No. 6.2e-65;
  Matches  120;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 PYAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKE 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 PYAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKE 60

Qy      61 ARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 ARPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
```

```
RESULT 2
US-09-745-032-1
; Sequence 1, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-1

  Query Match             98.2%;  Score 641;  DB 10;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 1.3e-63;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 3
US-09-742-600-1
; Sequence 1, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-1

  Query Match             98.2%;  Score 641;  DB 10;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 1.3e-63;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 4
US-09-872-090-1
; Sequence 1, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-872-090-1

  Query Match             98.2%;  Score 641;  DB 10;  Length 120;
  Best Local Similarity   99.2%;  Pred. No. 1.3e-63;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 5
US-08-450-842-4
; Sequence 4, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
```

```
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  257 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-4

  Query Match             98.2%;  Score 641;  DB 8;  Length 257;
  Best Local Similarity   99.2%;  Pred. No. 3.1e-63;
  Matches  118;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     139 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 198

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db     199 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 257


RESULT 6
US-09-745-032-6
; Sequence 6, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-6

  Query Match             96.3%;  Score 629;  DB 10;  Length 119;
  Best Local Similarity   97.5%;  Pred. No. 2.6e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || ||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 7
US-09-742-600-6
; Sequence 6, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-6

  Query Match             96.3%;  Score 629;  DB 10;  Length 119;
  Best Local Similarity   97.5%;  Pred. No. 2.6e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || ||||||||||||||||||||||||||||||||||||||||||||| ||||||||
Db      61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 8
US-09-872-090-6
; Sequence 6, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 6
;   LENGTH: 119
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Analog of
;   OTHER INFORMATION: human NT-3.
US-09-872-090-6

  Query Match             96.3%;  Score 629;  DB 10;  Length 119;
  Best Local Similarity   97.5%;  Pred. No. 2.6e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60
```

```
Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 119


RESULT 9
US-09-745-032-3
; Sequence 3, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-3

  Query Match             96.3%;  Score 629;  DB 10;  Length 120;
  Best Local Similarity   97.5%;  Pred. No. 2.7e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      62 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 10
US-09-742-600-3
; Sequence 3, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-3

  Query Match             96.3%;  Score 629;  DB 10;  Length 120;
  Best Local Similarity   97.5%;  Pred. No. 2.7e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      62 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 11
US-09-872-090-3
; Sequence 3, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 120
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Analog of
;   OTHER INFORMATION: human NT-3.
US-09-872-090-3

  Query Match             96.3%;  Score 629;  DB 10;  Length 120;
  Best Local Similarity   97.5%;  Pred. No. 2.7e-62;
  Matches  116;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy      62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIGRT 120
           || |||||||||||||||||||||||||||||||||||||||||||||||| |||||||||
Db      62 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIGRT 120


RESULT 12
US-09-745-032-7
; Sequence 7, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 117
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-7
```

```
  Query Match             94.8%;  Score 619;  DB 10;  Length 117;
  Best Local Similarity   97.4%;  Pred. No. 3.2e-61;
  Matches  114;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIG 118
          || |||||||||||||||||||||||||||||||||||||||||||| |||||||
Db     61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 117


RESULT 13
US-09-742-600-7
; Sequence 7, Application US/09742600
; Patent No. US20020010135A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/742,600
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 117
;   TYPE: PRT
;   ORGANISM: Human
US-09-742-600-7

  Query Match             94.8%;  Score 619;  DB 10;  Length 117;
  Best Local Similarity   97.4%;  Pred. No. 3.2e-61;
  Matches  114;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIG 118
          || |||||||||||||||||||||||||||||||||||||||||||| |||||||
Db     61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 117


RESULT 14
US-09-872-090-7
; Sequence 7, Application US/09872090
; Patent No. US20020052488A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen Ngoi Yin
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: Analogs of NT-3 (As Amended)
;  FILE REFERENCE: A-411B
;  CURRENT APPLICATION NUMBER: US/09/872,090
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: 09/255,953
;  PRIOR FILING DATE: 1999-02-23
;  PRIOR APPLICATION NUMBER: 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
;   LENGTH: 117
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Analog of
;   OTHER INFORMATION: human NT-3.
US-09-872-090-7

  Query Match             94.8%;  Score 619;  DB 10;  Length 117;
  Best Local Similarity   97.4%;  Pred. No. 3.2e-61;
  Matches  114;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 60

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIG 118
          || |||||||||||||||||||||||||||||||||||||||||||| |||||||
Db     61 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 117


RESULT 15
US-09-745-032-5
; Sequence 5, Application US/09745032
; Patent No. US20010027179A1
; GENERAL INFORMATION:
;  APPLICANT: Boone, Thomas C.
;  APPLICANT:  Cheung, Ellen N.
;  APPLICANT:  Hershenson, Susan I.
;  APPLICANT:  Young, John D.
;  TITLE OF INVENTION: ANALOGS OF CATIONIC PROTEINS
;  FILE REFERENCE: A-411A US Revised073100
;  CURRENT APPLICATION NUMBER: US/09/745,032
;  CURRENT FILING DATE:  2000-12-19
;  PRIOR APPLICATION NUMBER: 09/214,214
;  PRIOR FILING DATE: 1998-12-23
;  PRIOR APPLICATION NUMBER: US 08/684,353
;  PRIOR FILING DATE: 1996-07-19
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 5
;   LENGTH: 118
;   TYPE: PRT
;   ORGANISM: Human
US-09-745-032-5

  Query Match             94.8%;  Score 619;  DB 10;  Length 118;
  Best Local Similarity   97.4%;  Pred. No. 3.3e-61;
  Matches  114;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      2 YAEHKSHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEIKTGNSPVKQYFYETRCKEA 61

Qy     62 RPVKNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVSALSRKIG 118
          || |||||||||||||||||||||||||||||||||||||||||||| |||||||
Db     62 APVDNGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 118


Search completed: December  2, 2002, 15:14:35
Job time : 5.2204 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:37 ; Search time 25.9086 Seconds
(without alignments)
668.605 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	698	100.0	130	19	AAW48890	Human neurotrophin
2	698	100.0	130	21	AAB29112	Human neutrophin-4
3	698	100.0	210	13	AAR22465	Neurotrophic facto
4	694	99.4	210	13	AAR22482	Neurotrophic facto
5	689	98.7	130	21	AAY92009	Human neurotrophin
6	689	98.7	215	14	AAR30691	Human neutrophin-4
7	689	98.7	215	15	AAR47102	Human NT-4 encode
8	684	98.0	130	13	AAR22477	Neurotrophic facto
9	684	98.0	130	13	AAR22479	Neurotrophic facto
10	683	97.9	130	13	AAR22471	Neurotrophic facto
11	683	97.9	130	13	AAR22480	Neurotrophic facto
12	683	97.9	215	13	AAR29735	Human NT-4, encode
13	682	97.7	130	13	AAR22481	Neurotrophic facto
14	680	97.4	130	13	AAR22470	Neurotrophic facto
15	678	97.1	130	13	AAR22469	Neurotrophic facto
16	676	96.8	130	13	AAR22478	Neurotrophic facto
17	650	93.1	126	13	AAR22475	Neurotrophic facto
18	642	92.0	124	13	AAR22473	Neurotrophic facto
19	586	84.0	114	13	AAR22476	Neurotrophic facto
20	565	80.9	118	22	AAB35947	NT-4 amino acid se
21	540	77.4	142	13	AAR22472	Neurotrophic facto
22	535.5	76.7	107	13	AAR22474	Neurotrophic facto
23	499.5	71.6	186	13	AAR22468	Neurotrophic facto
24	494.5	70.8	216	13	AAR22466	Neurotrophic facto
25	475.5	68.1	257	13	AAR22467	Neurotrophic facto
26	415	59.5	236	15	AAR47098	Xenopus NT-4 fragm
27	415	59.5	237	13	AAR29491	NT-4, Xenopus. Xe
28	415	59.5	239	15	AAR47097	Xenopus mature NT-
29	367	52.6	132	15	AAR47104	Human NT-4 encode
30	364	52.1	123	13	AAR21859	Chimeric neurotrop
31	361	51.7	123	13	AAR21857	Chimeric neurotrop
32	360	51.6	119	19	AAW52302	Mutant huNT-3 1-11
33	360	51.6	119	22	AAE05871	Human NT-3(1-119)R
34	360	51.6	120	19	AAW52300	Mutant met-huNT-3
35	360	51.6	120	22	AAE05869	Human r-metHuNT-3
36	358	51.3	119	13	AAR29495	NT-3, mouse. Mus
37	358	51.3	119	15	AAR54086	Neurotrophin-3. R
38	358	51.3	119	20	AAW81118	Neurotrophin-3 wil
39	358	51.3	119	22	AAG64995	Nerve growth facto
40	358	51.3	119	22	AAB35946	NT-3 amino acid se
41	358	51.3	120	17	AAW29392	Conjugate of neuro
42	358	51.3	120	18	AAW10014	Human neurotrophin
43	358	51.3	120	21	AAB10455	Human R-metHuNT pr
44	358	51.3	120	22	AAE05868	Human recombinant
45	358	51.3	136	12	AAR11306	Nerve Growth Facto

ALIGNMENTS

RESULT 1
AAW48890
ID AAW48890 standard; Protein; 130 AA.
XX
AC AAW48890;
XX
DT 12-OCT-1998 (first entry)
XX
DE Human neurotrophin-4/5.
XX
KW Neurotrophin-4/5; NT-4/5; human; purification;
KW hydrophobic interaction chromatography.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Region 61..78
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
FT Region 119..121
FT /note= "conserved Cys-containing region involved in
FT Cys knot motif"
XX
PN WO9821234-A2.
XX
PD 22-MAY-1998.
XX
PF 14-NOV-1997; 97WO-US21068.
XX
PR 29-MAY-1997; 97US-0047855.
PR 15-NOV-1996; 96US-0030838.
XX
PA (GETH) GENENTECH INC.

```
XX
PI   Beck JT,  Burton LE,  Schmelzer CH;
XX
DR   WPI; 1998-322333/28.
XX
PT   Isolation of neurotrophin(s) from, e.g. mis-folded or glycosylated
PT   variant(s) - using hydrophobic interaction chromatography,
PT   optionally in combination with high performance cation exchange
PT   chromatography
XX
PS   Disclosure; Page 38; 59pp; English.
XX
CC   This polypeptide comprises human neurotrophin-4/5 (NT-4/5) mature
CC   polypeptide.  Methods are provided for large-scale purification of
CC   neurotrophins, including NT-4/5, suitable for clinical use.  A
CC   claimed method comprises: (1) separating the neurotrophin from the
CC   other proteins using a hydrophobic interaction chromatography resin
CC   (HICR); and optionally (2) separating the neurotrophin from a
CC   chemical variant by high performance cation exchange chromatography
CC   (HPCEC).  The processes can also be used for purification of e.g.
CC   human nerve growth factor (NGF) (see AAW48886), mouse NGF (see
CC   AAW48887), brain-derived neurotrophic factor (see AAW48888) and
CC   neurotrophin-3 (see AAW48889).  The processes allow separation of
CC   neurotrophins from various undesirable misprocessed, misfolded,
CC   size, glycosylated or charge forms.  They allow selective
CC   separation from variants and other molecules, and from other
CC   polypeptides with high pI.  The processes are applicable to
CC   starting materials from various sources, including fermentation
CC   broths or lysed bacterial or mammalian cells.
XX
SQ   Sequence   130 AA;

  Query Match             100.0%;  Score 698;  DB 19;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 1.7e-71;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 2
AAB29112
ID   AAB29112 standard; Protein; 130 AA.
XX
AC   AAB29112;
XX
DT   02-FEB-2001  (first entry)
XX
DE   Human neutrophin-4/5.
XX
KW   Neutrophin; trkB; trkC; ototoxicity-related balance impairment;
KW   Meniere's syndrome; myringitis; otitis media;
KW   acute vestibular neuronitis; herpes zoster oticus; labyrinthitis;
KW   middle; labyrinthe tumour; petrositis; otosclerosis; bacteria.
XX
OS   Homo sapiens.
XX
PN   US6121235-A.
XX
PD   19-SEP-2000.
XX
PF   29-DEC-1995;   95US-0581662.
XX
PR   29-DEC-1995;   95US-0581662.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Gao W;
XX
DR   WPI; 2000-618200/59.
XX
PT   Treating ototoxin-induced neuronal-related balance impairment and
PT   promoting vestibular ganglion neuron survival prior to, upon or after
PT   exposure to an ototoxin, comprises administering a trkB or trkC agonist
PT   -
XX
PS   Disclosure; Column 47-48; 40pp; English.
XX
CC   The present invention relates to treating ototoxin-induced
CC   neuronal-related balance impairment in a mammal by administering a
CC   trkB or trkC agonist, particularly neurotrophin-4/5 (NT-4/5).
CC   Ototoxicity-related balance impairments include Meniere's syndrome,
CC   myringitis, otitis media, acute vestibular neuronitis, herpes zoster
CC   oticus, labyrinthitis, middle or labyrinthe tumours, petrositis and
CC   otosclerosis. NT-4/5 may also be used to treat diseases
CC   induced by gram positive, gram negative and acid-fast bacteria. The
CC   present sequence is a protein used in the invention.
XX
SQ   Sequence   130 AA;

  Query Match             100.0%;  Score 698;  DB 21;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 1.7e-71;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 3
AAR22465
ID   AAR22465 standard; Protein; 210 AA.
XX
AC   AAR22465;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4.
XX
KW   Huntington's chorea; ALS; NT-4; NGF; BDNF; NT-3; neuron.
XX
OS   Homo sapiens.
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
DR   N-PSDB; AAQ23663.
XX
```

```
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Fig 1; 84pp; English.
XX
CC   The sequence shows the entire amino acid sequence for the mature
CC   human neurotrophic factor-4 (NT-4) gene, (nucleotide sequence
CC   AAQ23663). This protein can be useful in treating damaged nerve cells
CC   or neurodegenerative diseases eg. Huntingdon's chorea, Alzheimer's
CC   disease, ALS and Parkinson's disease.
CC   NT-4 is a novel trophic factor with a broad tissue distribution.
CC   It complements NGF, BDNF, and NT-3, which are trophic factors for
CC   some peripheral neurons.  This factor can act alone or with other
CC   trophic factors, on defined subsets of neurons to achieve the
CC   correct neuronal connections both in the peripheral and central
CC   nervous system.
XX
SQ   Sequence   210 AA;

  Query Match             100.0%;  Score 698;  DB 13;  Length 210;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-71;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 4
AAR22482
ID   AAR22482 standard; Protein; 210 AA.
XX
AC   AAR22482;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 activity varients.
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 70..70
FT                   /note= "Any amino acid except Glu, Gly, Asp or Pro"
FT   Misc-difference 71..71
FT                   /note= "Any amino acid except Ala, Pro or Met"
FT   Misc-difference 83..83
FT                   /note= "Any amino acid except Arg, Asp, Ser or Lys"
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Page 9; 84pp; English.
XX
CC   The sequence shows a portion of the amino acid sequence of human
CC   neurotrophic factor-4 (NT-4), (full sequence AAR22465).  Positions
CC   70, 71 and 83 are positions of various amino acid substitutions.
CC   Substitutions at these positions can cause a marked differentiation
CC   in the activity of the trophic element.
CC   The sites of greatest interest for substitutional mutagenesis include
CC   sites where the amino acids found in BDNF, NGF, NT-3, and NT-4 are
CC   substantially different in terms of side chain bulk, charge, or
CC   hydrophobicity, but where there is also a high degree of homology at
CC   the seleicted  site within various animal analogues of NGF, NT-3 and
CC   BDNF.
XX
SQ   Sequence   210 AA;

  Query Match             99.4%;  Score 694;  DB 13;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 8.9e-71;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           || |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVXETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 5
AAY92009
ID   AAY92009 standard; Protein; 130 AA.
XX
AC   AAY92009;
XX
DT   19-JUL-2000  (first entry)
XX
DE   Human neurotrophin-4 monomer.
XX
KW   human neurotrophin-3 monomer; CKGF; mutant; cystine knot growth factor;
KW   hairpin loop; neurodegenerative.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1..16
FT                   /note= "optionally mutated to increase electrostatic
FT                           interaction between beta hairpin structure and
FT                           a receptor"
FT   Domain          18..60
FT                   /label= beta_hairpin_loop_1
FT                   /note= "mutant optionally comprises one or more
FT                           substitutions in these residues"
FT   Misc-difference 62..89
FT                   /note= "optionally mutated to increase electrostatic
FT                           interaction between beta hairpin structure and
FT                           a receptor"
FT   Domain          91..118
FT                   /label= beta_hairpin_loop_3
FT                   /note= "mutant optionally comprises one or more
FT                           substitutions in these residues"
FT   Misc-difference 120..130
FT                   /note= "optionally mutated to increase electrostatic
FT                           interaction between beta hairpin structure and
```

```
FT                              a receptor"
XX
PN   WO200017360-A1.
XX
PD   30-MAR-2000.
XX
PF   19-MAR-1999;   99WO-US05908.
XX
PR   22-SEP-1998;   98WO-US19772.
XX
PA   (UYMA-) UNIV MARYLAND BALTIMORE.
XX
PI   Weintraub BD,  Szkudlinski MW;
XX
DR   WPI; 2000-283585/24.
XX
PT   New mutant cystine knot growth factor proteins comprising one or more
PT   mutant subunits, useful for treating or preventing diseases e.g.
PT   hypothyroidism and thyroid cancer
XX
PS   Claim 177; Page 300; 320pp; English.
XX
CC   This is the wild type human neurotrophin-4 monomer.
CC   Mutants comprise at least one electrostatic charge altering mutation in a
CC   beta hairpin loop, resulting in increased bioactivity.
CC   Mutant cystine knot growth factor (CKGF) proteins comprising one or more
CC   mutant subunits and having novel properties or improved pharmacological
CC   properties, compared to wild type CKGFs, are claimed.  The CKGF
CC   superfamily comprises at least four families of growth factors: the
CC   glycoprotein hormones, the platelet-derived growth factor (PDGF) family,
CC   the neurotrophins and the transforming growth factor-beta family; the
CC   families are known to be structurally similar (especially comprising the
CC   cystine knot topology) and it was shown that mutations at certain
CC   positions in the CKGF hairpin loops of family members and other members
CC   of the CKGF superfamily could significantly alter the biological
CC   activities of the CKGF.
CC   Mutant neurotrophins are useful for diagnosis and treatment of
CC   neurodegenerative diseases.
XX
SQ   Sequence   130 AA;

  Query Match             98.7%;  Score 689;  DB 21;  Length 130;
  Best Local Similarity   99.2%;  Pred. No. 1.8e-70;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 6
AAR30691
ID   AAR30691 standard; Protein; 215 AA.
XX
AC   AAR30691;
XX
DT   18-MAY-1993  (first entry)
XX
DE   Human neutrophin-4.
XX
KW   stress protector protein; protection; toxic shock; stress;
KW   stress susceptibility.
XX
OS   Homo sapiens.
XX

FH   Key             Location/Qualifiers
FT   Region          81..83
FT                   /label= N-glycosylation concensus sequence.
FT   Cleavage-site   84..85
FT                   /label= predicted preprotein cleavage site
XX
PN   WO9222665-A.
XX
PD   23-DEC-1992.
XX
PF   11-JUN-1992;   92WO-US05006.
XX
PR   12-JUN-1991;   91US-0715185.
PR   21-NOV-1991;   91US-0796106.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Fandl JP,  Panayotatos N;
XX
DR   WPI; 1993-018148/02.
DR   P-PSDB; AAR30690.
XX
PT   Recovery of recombinant biologically active neurotrophin(s) -
PT   comprises solubilising protein in soln. contg. strong denaturing
PT   agent and free of reducing agent
XX
PS   Claim 83; Fig 11; 164pp; English.
XX
CC   This sequence represents human neurotrophin 4. The coding sequence
CC   is fused to LamB signal sequences to enable its recombinant production.
CC   The protein is newly discovered and its biological role under
CC   investigation.
XX
SQ   Sequence   215 AA;

  Query Match             98.7%;  Score 689;  DB 14;  Length 215;
  Best Local Similarity   99.2%;  Pred. No. 3.4e-70;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      86 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 145

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db     146 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 205

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     206 CTLLSRTGRA 215


RESULT 7
AAR47102
ID   AAR47102 standard; Protein; 215 AA.
XX
AC   AAR47102;
XX
DT   21-JUN-1994  (first entry)
XX
DE   Human NT-4 encode by genomic phage clone 7-2.
XX
KW   Neurotrophin-4; NT-4; viper; Xenopus; rat; human; nerve growth factor;
KW   brain-derived neurotrophin factor; BDNF; NGF; acute neuropraxia; NT-3;
KW   gene family; survival; growth; differentiation; neuron; cholinergic;
KW   basal forebrain; cholinergic neuron; dopaminergic; neuron disease;
KW   peripheral neuropathy; hippocampus; striatum; neurotmesis; atoxmesis;
KW   diabetic neuropathy; amyotrophic lateral sclerosis; compression;
KW   tumour; abscess; trauma; Alzheimer's disease; Parkinson's disease;
KW   retina; retinal ganglion cell degeneration; antibody; diagnosis.
XX
OS   Homo sapiens.
XX
```

PN WO9325684-A.
XX
PD 23-DEC-1993.
XX
PF 11-JUN-1993; 93WO-US05672.
XX
PR 12-JUN-1992; 92US-0898194.
XX
PA (REGE-) REGENERON PHARM INC.
XX
PI Altar CA, DiStefano P, Ip N, Ventimiglia R, Wiegand S;
PI Wong V, Yancopoulos GD;
XX
DR WPI; 1994-007541/01.
DR N-PSDB; AAQ54715.
XX
PT Neuro:trophin-4-proteins which support survival, growth and
PT differentiation of motor neurons - used to treat motor neuron
PT disorders e.g. dopaminergic and cholinergic neuron diseases
XX
PS Disclosure; Page 145; 181pp; English.
XX
CC The sequences given in AAR47095-104 represent neurotrophin-4 (NT-4),
CC fragments and derivatives of NT-4, and were derived from viper,
CC Xenopus, rat and human. NT-4 is a member of the brain-derived
CC neurotrophin factor (BDNF)/nerve growth factor (NGF)/NT-3 gene family.
CC NT-4 proteins can promote the survival, growth and differentiation
CC of neurons, such as basal forebrain cholinergic neurons. NT-4
CC proteins can be used to treat dopaminergic or cholinergic neuron
CC diseases and disorders. NT-4 related proteins may be used to treat
CC peripheral neuropathy and diseases of the hippocampus and striatum.
CC Disorders which may be treated in this way, include acute neuropraxia,
CC neurotmesis, atoxmesis, diabetic neuropathy, amyotrophic lateral
CC sclerosis or compression, a tumour, abscess, trauma, Alzheimer's
CC disease, Parkinson's disease or a disorder of the retina, especially
CC involving retinal ganglion cell degeneration. Anti-NT-4 antibodies
CC may be used for diagnostic or therapeutic purposes, eg. to monitor the
CC progression of diseases associated with alterations in the pattern of
CC NT-4 expression.
XX
SQ Sequence 215 AA;

Query Match 98.7%; Score 689; DB 15; Length 215;
Best Local Similarity 99.2%; Pred. No. 3.4e-70;
Matches 129; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      86 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 145

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db     146 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 205

Qy     121 CTLLSRTGRA 130
          ||||||||||
Db     206 CTLLSRTGRA 215
```

RESULT 8
AAR22477
ID AAR22477 standard; Protein; 130 AA.
XX
AC AAR22477;
XX
DT 22-SEP-1992 (first entry)
XX
DE Neurotrophic factor 4 activity varients.
XX
KW NT-4; NGF; NT-3; BDNF; varient; deletion; tertiary structure;
KW homology; activity.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 53..53
FT /label= HIS
XX
PN WO9205254-A.
XX
PD 02-APR-1992.
XX
PF 24-SEP-1991; 91WO-US06950.
XX
PR 25-SEP-1990; 90US-0587707.
PR 31-JAN-1991; 91US-0648482.
XX
PA (GETH) GENENTECH INC.
XX
PI Rosenthal A;
XX
DR WPI; 1992-132123/16.
XX
PT Neurotrophic factor-4 - useful for treating neuro:degenerative
PT diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT damaged by e.g. diabetes
XX
PS Disclosure; Seq 59; 84pp; English.
XX
CC The sequence shows an NT-4 varient protein, in which the Arg
CC residue at position 133 of NT-4 (sequence given in AAR22465), is
CC replaced by a His residue. This corresponds to position 53 of the
CC mature NT-4 protein. This substitution renders the NT-4 resistent to
CC proteolysis, thereby creating a varient of NT-4 that is more stable.
CC The sites of greatest interest for substitutional mutagenesis include
CC sites where the amino acids found in BDNF, NGF, NT-3, and NT-4 are
CC substantially different in terms of side chain bulk, charge or
CC hydrophobicity, but where there is also a high degree of homology at
CC the selected site within various animal analogues of BDNF, NGF and
CC NT-3.
XX
SQ Sequence 130 AA;

Query Match 98.0%; Score 684; DB 13; Length 130;
Best Local Similarity 98.5%; Pred. No. 6.8e-70;
Matches 128; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          |||||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLHQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||||||||||||||||||||| |||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
          ||||||||||
Db     121 CTLLSRTGRA 130
```

RESULT 9
AAR22479
ID AAR22479 standard; Protein; 130 AA.
XX
AC AAR22479;
XX
DT 22-SEP-1992 (first entry)
XX
DE Neurotrophic factor 4 activity varients.
XX
KW NT-4; NGF; NT-3; BDNF; varient; deletion; tertiary structure;
KW homology; activity.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers

```
FT   Misc-difference 108..108
FT                   /label= PHE
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Seq 61; 84pp; English.
XX
CC   The sequence shows an NT-4 varient protein, in which the Phe
CC   residue at position 188 of NT-4 (sequence given in AAR22465), is
CC   replaced by a His residue.  This corresponds to position 108 of the
CC   mature NT-4 protein.  The sites of greatest interest for
CC   substitutional mutagenesis include sites where the amino acids found
CC   in BDNF, NGF, NT-3, and NT-4 are substantially different in terms of
CC   side chain bulk, charge or hydrophobicity, but where there is also a
CC   high degree of homology at the selected site within various animal
CC   analogues of BDNF, NGF and NT-3.
XX
SQ   Sequence   130 AA;

  Query Match             98.0%;  Score 684;  DB 13;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 6.8e-70;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| |||| ||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRFGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 10
AAR22471
ID   AAR22471 standard; Protein; 130 AA.
XX
AC   AAR22471;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 variants (E67).
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution; non-conservative.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 67..67
FT                   /label= SER, THR
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Page 45-46; 84pp; English.
XX
CC   The sequence shows a portion of the amino acid sequence of human
CC   neurotrophic factor-4 (NT-4), (full sequence AAR22465).  Position 67
CC   is a point of a non-conservative substitution which can cause a
CC   marked differentiation in the activity of the trophic element.
CC   Either Ser or Thr may be included at this point.  This substitution
CC   changes an acidic amino acid for a hydrophillicly neutral one.The
CC   sites of greatest interest for substitutional mutagenesis include
CC   sites where the amino acids found in BDNF, NGF, NT-3, and NT-4 are
CC   substantially different in terms of side chain bulk, charge, or
CC   hydrophobicity, but where there is also a high degree of homology at
CC   the selelcted  site within various animal analogues of NGF, NT-3 and
CC   BDNF.
XX
SQ   Sequence   130 AA;

  Query Match             97.9%;  Score 683;  DB 13;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 8.9e-70;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||| |||||||||||||||||||||||||||||||| |||||||||||||||||||
Db      61 CKADNAXEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 11
AAR22480
ID   AAR22480 standard; Protein; 130 AA.
XX
AC   AAR22480;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 activity varients.
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 84..84
FT                   /label= GLN, HIS, ASN, THR, TYR, TRP
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
```

```
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Seq 62-67; 84pp; English.
XX
CC   The sequence shows a portion of the amino acid sequence of human
CC   neurotrophic factor-4 (NT-4), (full sequence AAR22465).  Position 84
CC   is a point at which substitution mutation causes a marked
CC   differentiation in the activity of the trophic element.  Either Gln,
CC   His, Asn, Thr, Tyr or Trp may be included at this point.  The sites
CC   of greatest interest for substitutional mutagenesis include sites
CC   where the amino acids found in BDNF, NGF, NT-3, and NT-4 are
CC   substantially different in terms of side chain bulk, charge, or
CC   hydrophobicity, but where there is also a high degree of homology at
CC   the selelcted  site within various animal analogues of NGF, NT-3 and
CC   BDNF.
XX
SQ   Sequence   130 AA;

  Query Match             97.9%;  Score 683;  DB 13;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 8.9e-70;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||| |||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRXHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 12
AAR29735
ID   AAR29735 standard; Protein; 215 AA.
XX
AC   AAR29735;
XX
DT   22-APR-1993  (first entry)
XX
DE   Human NT-4, encoded by clone 7-2.
XX
KW   Neurotrophin; NT; nerve growth factor; NGF;
KW   brain-derived neurotrophic factor; BDNF; probe; primer.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 2
FT                   /note= "conserved residue in presequence"
FT   Misc-difference 6
FT                   /note= "conserved residue in presequence"
FT   Misc-difference 9
FT                   /note= "conserved residue in presequence"
FT   Misc-difference 48..51
FT                   /note= "conserved residues in presequence"
FT   Misc-difference 54
FT                   /note= "conserved residue in presequence"
FT   Misc-difference 62
FT                   /note= "conserved residue in presequence"
FT   Modified-site   81..83
FT                   /label= N-glycosylation_site
FT   Cleavage-site   84..85
XX
PN   WO9220365-A.
XX
PD   26-NOV-1992.
XX
PF   20-MAY-1992;   92WO-US04266.
XX
PR   21-MAY-1991;   91US-0703450.
PR   12-JUL-1991;   91US-0729253.
PR   23-JUL-1991;   91US-0734422.
PR   28-AUG-1991;   91US-0751356.
PR   20-SEP-1991;   91US-0762674.
PR   14-NOV-1991;   91US-0791924.
XX
PA   (REGE-) REGENERON PHARM INC.
XX
PI   Hallbook F,  Ibanez Moliner CF,  Persson HB,  Yancopoulos GD;
XX
DR   WPI; 1992-415468/50.
DR   N-PSDB; AAQ32230.
XX
PT   Use of neurotrophin-4 for promoting growth and survival of nerve
PT   cells - useful in treating neurological, fertility and
PT   immunological disorders and in diagnosis
XX
PS   Disclosure; Page 117-119 + Fig 18; 180pp; English.
XX
CC   Oligonucleotide probes and primers were synthesised based on the NT
CC   family including NGF, BDNF and NT-3.  These were used to isolate DNA
CC   encoding NT-4 from nucleic acid from Xenopus ovaries.  This DNA was
CC   then used to isolate other mammalian DNA encoding NT-4, including
CC   human NT-4 DNA.
XX
SQ   Sequence   215 AA;

  Query Match             97.9%;  Score 683;  DB 13;  Length 215;
  Best Local Similarity   98.5%;  Pred. No. 1.6e-69;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      86 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 145

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||| |||||||||||||||| ||||||||||||||||
Db     146 CKADNAEEGGPGAGGGGCRGVDRSHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 205

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     206 CTLLSRTGRA 215


RESULT 13
AAR22481
ID   AAR22481 standard; Protein; 130 AA.
XX
AC   AAR22481;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 activity varients.
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
```

```
FT   Misc-difference 116..116
FT                   /note= "GLU, ASN, GLN, TYR, SER, THR"
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Seq 68-73; 84pp; English.
XX
CC   The sequence shows a portion of the amino acid sequence of human
CC   neurotrophic factor-4 (NT-4), (full sequence AAR22465).  Position 116
CC   is a point at which substitution mutation causes a marked
CC   differentiation in the activity of the trophic element.  Either Glu,
CC   Asn, Gln, Tyr, Ser or Thr may be included at this point.  The sites
CC   of greatest interest for substitutional mutagenesis include sites
CC   where the amino acids found in BDNF, NGF, NT-3, and NT-4 are
CC   substantially different in terms of side chain bulk, charge, or
CC   hydrophobicity, but where there is also a high degree of homology at
CC   the selelcted  site within various animal analogues of NGF, NT-3 and
CC   BDNF.
XX
SQ   Sequence   130 AA;

  Query Match             97.7%;  Score 682;  DB 13;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.2e-69;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| |||||||||||| ||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIXTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 14
AAR22470
ID   AAR22470 standard; Protein; 130 AA.
XX
AC   AAR22470;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 variants (R85).
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 85..85
FT                   /label= GLU, PHE, PRO, TYR, TRP
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
PF   24-SEP-1991;   91WO-US06950.
XX
PR   25-SEP-1990;   90US-0587707.
PR   31-JAN-1991;   91US-0648482.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Rosenthal A;
XX
DR   WPI; 1992-132123/16.
XX
PT   Neurotrophic factor-4 - useful for treating neuro:degenerative
PT   diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT   damaged by e.g. diabetes
XX
PS   Disclosure; Page 43; 84pp; English.
XX
CC   The sequence shows a portion of the amino acid sequence of human
CC   neurotrophic factor-4 (NT-4), (full sequence AAR22465).  Position 85
CC   is a point at which substitution mutation causes a marked
CC   differentiation in the activity of the trophic element.  Either Glu,
CC   Phe, Pro, Tyr or Trp may be included at this point.  The sites of
CC   greatest interest for substitutional mutagenesis include sites where
CC   the amino acids found in BDNF, NGF, NT-3, and NT-4 are substantially
CC   different in terms of side chain bulk, charge, or hydrophobicity, but
CC   where there is also a high degree of homology at the selelcted  site
CC   within various animal analogues of NGF, NT-3 and BDNF.
XX
SQ   Sequence   130 AA;

  Query Match             97.4%;  Score 680;  DB 13;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 2e-69;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||| |||||||||||||||| |||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRXWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 15
AAR22469
ID   AAR22469 standard; Protein; 130 AA.
XX
AC   AAR22469;
XX
DT   22-SEP-1992  (first entry)
XX
DE   Neurotrophic factor 4 variants (G78).
XX
KW   NT-4; NT-3; BDNF; NGF; mutagenesis; substitution.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 78..78
FT                   /label= LYS, HIS, GLN, ARG
XX
PN   WO9205254-A.
XX
PD   02-APR-1992.
XX
```

PF 24-SEP-1991; 91WO-US06950.
XX
PR 25-SEP-1990; 90US-0587707.
PR 31-JAN-1991; 91US-0648482.
XX
PA (GETH) GENENTECH INC.
XX
PI Rosenthal A;
XX
DR WPI; 1992-132123/16.
XX
PT Neurotrophic factor-4 - useful for treating neuro:degenerative
PT diseases e.g. Alzheimer's and Parkinson's diseases, nerve cells
PT damaged by e.g. diabetes
XX
PS Disclosure; Page 40-41; 84pp; English.
XX
CC The sequence shows a portion of the amino acid sequence of human
CC neurotrophic factor-4 (NT-4), (full sequence AAR22465). Position 78
CC is a point at which substitution mutation causes a marked
CC differentiation in the activity of the trophic element. Either Lys,
CC His, Gln, or Arg may be included at this point. The sites of greatest
CC interest for substitutional mutagenesis include sites where the amino
CC acids found in BDNF, NGF, NT-3, and NT-4 are substantially different
CC in terms of side chain bulk, charge, or hydrophobicity, but where
CC there is also a high degree of homology at the seleicted site within
CC various animal analogues of NGF, NT-3 and BDNF.
XX
SQ Sequence 130 AA;

Query Match 97.1%; Score 678; DB 13; Length 130;
Best Local Similarity 98.5%; Pred. No. 3.3e-69;
Matches 128; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||| |||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGXRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130
```

Search completed: December 2, 2002, 15:08:40
Job time : 25.9086 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 10.3634 Seconds
(without alignments)
1205.921 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	689	98.7	210	2	A42687	neurotrophin-4 pre
2	663	95.0	209	2	B42687	neurotrophin-4 pre
3	415	59.5	236	2	JH0400	neurotrophin-4 pre
4	358	51.3	257	2	C40304	neurotrophin-3 pre
5	358	51.3	257	2	I50400	neurotrophin-3 pre
6	358	51.3	258	2	S09155	neurotrophin-3 pre
7	358	51.3	282	2	A35781	hippocampus-derive
8	345	49.4	247	2	A40304	brain-derived neur
9	345	49.4	249	2	S12555	brain-derived neur
10	345	49.4	249	2	B40304	brain-derived neur
11	345	49.4	252	2	A30361	brain-derived neur
12	342	49.0	248	2	JC6183	brain-derived neur
13	340	48.7	269	2	I51708	brain-derived neur
14	336	48.1	114	2	I84765	brain-derived neur
15	327	46.8	114	2	I50606	brain-derived neur
16	315	45.1	114	2	I51599	brain-derived neur
17	308.5	44.2	245	2	I56570	beta-nerve growth
18	307.5	44.1	125	2	A26312	nerve growth facto
19	307.5	44.1	229	2	I46614	nerve growth facto
20	305.5	43.8	303	1	NGRTBA	nerve growth facto
21	305.5	43.8	307	1	NGMSMG	nerve growth facto
22	302.5	43.3	243	2	A26311	nerve growth facto
23	297.5	42.6	286	1	NGHUBM	nerve growth facto
24	295.5	42.3	241	2	JL0097	nerve growth facto
25	290	41.5	235	2	S14481	nerve growth facto
26	269.5	38.6	243	2	I51193	nerve growth facto
27	265	38.0	116	1	NGNJXI	nerve growth facto
28	264.5	37.9	117	2	S28161	nerve growth facto
29	255	36.5	116	2	A58566	nerve growth facto
30	255	36.5	246	2	A59218	nerve growth facto
31	241.5	34.6	194	2	I51709	nerve growth facto
32	228.5	32.7	286	2	S50855	neurotrophin-6 - s
33	90	12.9	992	2	T08772	hypothetical prote
34	83	11.9	949	2	JC7802	Urb protein - mous
35	80.5	11.5	1070	2	T31332	nuclease - Aeromon
36	80.5	11.5	1507	2	A40228	neurexin I-alpha p
37	80	11.5	622	2	JC5425	transcription init
38	79.5	11.4	372	2	H70595	probable entC prot
39	76.5	11.0	860	1	EAMS	elastin precursor
40	76.5	11.0	1530	2	I45944	neurexin I-alpha -
41	74.5	10.7	577	2	B87010	probable isochoris
42	73.5	10.5	6260	2	T30228	polyketide synthas
43	72.5	10.4	625	2	S13919	potassium channel
44	72.5	10.4	940	2	T01854	hypothetical prote
45	72	10.3	894	2	C86756	prophage pi2 prote

ALIGNMENTS

RESULT 1
A42687
neurotrophin-4 precursor - human
N;Alternate names: neurotrophin-5
C;Species: Homo sapiens (man)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
C;Accession: A42687; JH0503
R;Ip, N.Y.; Ibanez, C.F.; Nye, S.H.; McClain, J.; Jones, P.F.; Gies, D.R.; Belluscio,
Proc. Natl. Acad. Sci. U.S.A. 89, 3060-3064, 1992
A;Title: Mammalian neurotrophin-4: structure, chromosomal localization, tissue distri
A;Reference number: A42687; MUID:92212967; PMID:1313578
A;Accession: A42687
A;Molecule type: DNA
A;Residues: 1-210 <IP1>
A;Cross-references: GB:M86528; NID:g190264; PIDN:AAA60154.1; PID:g190265
A;Note: sequence extracted from NCBI backbone (NCBIN:93810, NCBIP:93811)
R;Berkemeier, L.R.; Winslow, J.W.; Kaplan, D.R.; Nikolics, K.; Goeddel, D.V.; Rosenth
Neuron 7, 857-866, 1991
A;Title: Neurotrophin-5: a novel neurotrophic factor that activates trk and trkB.
A;Reference number: JH0503; MUID:92075279; PMID:1742028
A;Accession: JH0503
A;Status: nucleic acid sequence not shown
A;Molecule type: DNA
A;Residues: 1-210 <BER>
C;Comment: The neurotrophins stimulate autophosphorylation and transduce signals thro
C;Genetics:
A;Gene: GDB:NTF5
A;Cross-references: GDB:134723; OMIM:162662
A;Map position: 19pter-19qter
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-80/Domain: propeptide #status predicted <PRO>
F;81-210/Product: neurotrophin-4 #status predicted <NEU>
F;76/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 98.7%; Score 689; DB 2; Length 210;
Best Local Similarity 99.2%; Pred. No. 1e-59;
Matches 129; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210
```

```
RESULT 2
B42687
neurotrophin-4 precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
C;Accession: B42687; JH0504; JH0505
R;Ip, N.Y.; Ibanez, C.F.; Nye, S.H.; McClain, J.; Jones, P.F.; Gies, D.R.; Belluscio, L.
Proc. Natl. Acad. Sci. U.S.A. 89, 3060-3064, 1992
A;Title: Mammalian neurotrophin-4: structure, chromosomal localization, tissue distribut
A;Reference number: A42687; MUID:92212967; PMID:1313578
A;Accession: B42687
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-209 <IPA>
A;Cross-references: GB:M86742; NID:g205775; PIDN:AAA41728.1; PID:g205776
R;Berkemeier, L.R.; Winslow, J.W.; Kaplan, D.R.; Nikolics, K.; Goeddel, D.V.; Rosenthal,
Neuron 7, 857-866, 1991
A;Title: Neurotrophin-5: a novel neurotrophic factor that activates trk and trkB.
A;Reference number: JH0503; MUID:92075279; PMID:1742028
A;Accession: JH0504
A;Molecule type: DNA
A;Residues: 1-209 <BER>
A;Accession: JH0505
A;Molecule type: mRNA
A;Residues: 1-176,'P',178-209 <BER1>
A;Cross-references: GB:S69323; NID:g240025; PIDN:AAB20548.1; PID:g240026
C;Comment: This protein is a targed-derived, diffusible neurotrophic factor.
C;Comment: The neurotrophins stimulate autophosphorylation and transduce signals through
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-79/Domain: propeptide #status predicted <PRO>
F;80-209/Product: neurotrophin-5 #status predicted <NEU>
F;75/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             95.0%;  Score 663;  DB 2;  Length 209;
  Best Local Similarity   94.6%;  Pred. No. 3.5e-57;
  Matches  123;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      80 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 139

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||::| ||||| |||||||||||||:|||||||||||||| :|||||||||||||||||
Db     140 CKAESAGEGGPGVGGGGCRGVDRRHWLSECKAKQSYVRALTADSQGRVGWRWIRIDTACV 199

Qy     121 CTLLSRTGRA 130
          ||||||||||
Db     200 CTLLSRTGRA 209


RESULT 3
JH0400
neurotrophin-4 precursor - African clawed frog
C;Species: Xenopus laevis (African clawed frog)
C;Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 16-Jul-1999
C;Accession: JH0400
R;Hallboeoek, F.; Ibanez, C.F.; Persson, H.
Neuron 6, 845-858, 1991
A;Title: Evolutionary studies of the nerve growth factor family reveal a novel member ab
A;Reference number: JH0400; MUID:91222573; PMID:2025430
A;Accession: JH0400
A;Molecule type: DNA
A;Residues: 1-236 <HAL>
A;Cross-references: GB:Z30090; NID:g455533; PIDN:CAA82906.1; PID:g455534
C;Comment: This protein belongs to the nerve growth factor family.
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-113/Domain: propeptide #status predicted <PRO>
F;114-236/Product: neurotrophin-4 #status predicted <MAT>
F;106/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             59.5%;  Score 415;  DB 2;  Length 236;
  Best Local Similarity   63.0%;  Pred. No. 5.1e-33;
  Matches   80;  Conservative   15;  Mismatches   24;  Indels    8;  Gaps    2;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
            |::   |||||:|||:|: |||||:||||| ||: | |: |:    | ||:|||||:|
Db     117 SDSVSLSRRGELSVCDSVNVWVTDKRTAVDDRGKIVTVMSEIQTLTG-PLKQYFFETKCN 175

Qy      63 ADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
                   |:   ||||||:: |:|||||||||||||| |   |||||||||||||||
Db     176 PS-------GSTTRGCRGVDKKQWISECKAKQSYVRALTIDANKLVGWRWIRIDTACVCT 228

Qy     123 LLSRTGR 129
           |||||||
Db     229 LLSRTGR 235


RESULT 4
C40304
neurotrophin-3 precursor - human
N;Alternate names: nerve growth factor 2; NGF-2
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
C;Accession: A36208; JH0141; C40304; S10719; C60536
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth facto
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: A36208
A;Molecule type: DNA
A;Residues: 1-257 <JON>
A;Cross-references: GB:M37763; NID:g189300; PIDN:AAA59953.1; PID:g189301
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Lewis, M.; Shih, A.; Laramee, G.R.; Nikol
Neuron 4, 767-773, 1990
A;Title: Primary structure and biological activity of a novel human neurotrophic fact
A;Reference number: JH0141; MUID:90262727; PMID:2344409
A;Accession: JH0141
A;Molecule type: DNA
A;Residues: 1-257 <ROS>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene str
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: C40304
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M61180; NID:g189302; PIDN:AAA63231.1; PID:g189303
R;Kaisho, Y.; Yoshimura, K.; Nakahama, K.
FEBS Lett. 266, 187-191, 1990
A;Title: Cloning and expression of a cDNA encoding a novel human neurotrophic factor.
A;Reference number: S10719; MUID:90306351; PMID:2365067
A;Accession: S10719
A;Molecule type: mRNA
A;Residues: 1-257 <KAI>
A;Cross-references: GB:X53655; NID:g287794; PIDN:CAA37703.1; PID:g287795
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boul
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: C60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-73,'Q',75-77,'R',79-108,'T',110-257 <YAN>
C;Genetics:
A;Gene: GDB:NTF3
A;Cross-references: GDB:125917; OMIM:162660
A;Map position: 12p13-12p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-138/Domain: propeptide #status predicted <PRO>
```

```
F;139-257/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match            51.3%;  Score 358;  DB 2;  Length 257;
  Best Local Similarity  55.4%;  Pred. No. 1.9e-27;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
          | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db    144 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 197

Qy     69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
            |     ||||:| :|| |:||  |:|||||:     ||||||||||:||| |  : |
Db    198 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 255

Qy    129 R 129
          |
Db    256 R 256


RESULT 5
I50400
neurotrophin-3 precursor - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I50400; S42227
R;Maisonpierre, P.C.; Belluscio, L.; Conover, J.C.; Yancopoulos, G.D.
DNA Seq. 3, 49-54, 1992
A;Title: Gene sequences of chicken BDNF and NT-3.
A;Reference number: I50400; MUID:93091238; PMID:1457809
A;Accession: I50400
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-257 <MAI>
A;Cross-references: GB:M83378; NID:g212464; PIDN:AAA68880.1; PID:g212465
R;Hallboeoek, F.; Ibanez, C.F.; Ebendal, T.; Persson, H.
Eur. J. Neurosci. 5, 1-14, 1993
A;Title: Cellular localization of brain-derived neurotrophic factor and neurotrophin-3 m
A;Reference number: S42227; MUID:94084226; PMID:8074744
A;Accession: S42227
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 32-257 <HAL>
A;Cross-references: EMBL:Z30092; NID:g455531; PIDN:CAA82908.1; PID:g927570
C;Genetics:
A;Gene: NT-3
C;Superfamily: nerve growth factor beta chain

  Query Match            51.3%;  Score 358;  DB 2;  Length 257;
  Best Local Similarity  55.4%;  Pred. No. 1.9e-27;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
          | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db    144 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 197

Qy     69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
            |     ||||:| :|| |:||  |:|||||:     ||||||||||:||| |  : |
Db    198 AKPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 255

Qy    129 R 129
          |
Db    256 R 256


RESULT 6
S09155
neurotrophin-3 precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 16-Jul-1999
C;Accession: S09155; S51179
R;Hohn, A.; Leibrock, J.; Bailey, K.; Barde, Y.A.
Nature 344, 339-341, 1990
A;Title: Identification and characterization of a novel member of the nerve growth fa
A;Reference number: S09155; MUID:90190865; PMID:2314473
A;Accession: S09155
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-258 <HOH>
A;Cross-references: GB:X53257; NID:g53451; PIDN:CAA37348.1; PID:g53452
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51179
A;Status: preliminary
A;Molecule type: protein
A;Residues: 140-152 <KOL>
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;140-258/Product: neurotrophin-3 #status predicted <MAT>
F;131/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match            51.3%;  Score 358;  DB 2;  Length 258;
  Best Local Similarity  55.4%;  Pred. No. 1.9e-27;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
          | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db    145 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 198

Qy     69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
            |     ||||:| :|| |:||  |:|||||:     ||||||||||:||| |  : |
Db    199 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 256

Qy    129 R 129
          |
Db    257 R 257


RESULT 7
A35781
hippocampus-derived neurotrophic factor precursor - rat
N;Alternate names: neurotrophin-3 precursor
C;Species: Rattus norvegicus (Norway rat)
C;Date: 05-Oct-1990 #sequence_revision 05-Oct-1990 #text_change 16-Jul-1999
C;Accession: A35781; A40094
R;Ernfors, P.; Ibanez, C.F.; Ebendal, T.; Olson, L.; Persson, H.
Proc. Natl. Acad. Sci. U.S.A. 87, 5454-5458, 1990
A;Title: Molecular cloning and neurotrophic activities of a protein with structural s
A;Reference number: A35781; MUID:90319130; PMID:2164684
A;Accession: A35781
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-282 <ERN>
A;Cross-references: GB:M34643
R;Maisonpierre, P.C.; Belluscio, L.; Squinto, S.; Ip, N.Y.; Furth, M.E.; Lindsay, R.M
Science 247, 1446-1451, 1990
A;Title: Neurotrophin-3: a neurotrophic factor related to NGF and BDNF.
A;Reference number: A40094; MUID:90208301; PMID:2321006
A;Accession: A40094
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 25-282 <MAI>
A;Cross-references: GB:M33968; NID:g205771; PIDN:AAA41727.1; PID:g205772
C;Superfamily: nerve growth factor beta chain

  Query Match            51.3%;  Score 358;  DB 2;  Length 282;
  Best Local Similarity  55.4%;  Pred. No. 2.1e-27;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
          | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db    169 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 222
```

```
Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
           |     ||||:| :|| |:||  |:||||||:     ||||||||||:||| |  : |
Db     223 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 280

Qy     129 R 129
           |
Db     281 R 281


RESULT 8
A40304
brain-derived neurotrophic factor precursor - human
C;Species: Homo sapiens (man)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 21-Jul-2000
C;Accession: B36208; A60536; A40304; A37218; A61115; I38072
R;Jones, K.R.; Reichardt, L.F.
Proc. Natl. Acad. Sci. U.S.A. 87, 8060-8064, 1990
A;Title: Molecular cloning of a human gene that is a member of the nerve growth factor f
A;Reference number: A36208; MUID:91045937; PMID:2236018
A;Accession: B36208
A;Molecule type: DNA
A;Residues: 1-247 <JON>
A;Cross-references: GB:M37762; NID:g179402; PIDN:AAA51820.1; PID:g179403
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boulton
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways the
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: A60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-65,'M',67-247 <YAN>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la Mo
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene struct
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: A40304
A;Molecule type: mRNA
A;Residues: 1-247 <MAI>
A;Cross-references: GB:M61176; NID:g179404; PIDN:AAA69805.1; PID:g896463
A;Note: the sequence in GenBank entry HUMBDNFB, release 106.0, (PID:g896463) begins tran
R;Yamamoto, H.; Gurney, M.E.
J. Neurosci. 10, 3469-3478, 1990
A;Title: Human platelets contain brain-derived neurotrophic factor.
A;Reference number: A37218; MUID:91038253; PMID:2230938
A;Accession: A37218
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 138-236 <YAM>
R;Rosenthal, A.; Goeddel, D.V.; Nguyen, T.; Martin, E.; Burton, L.E.; Shih, A.; Laramee,
Endocrinology 129, 1289-1294, 1991
A;Title: Primary structure and biological activity of human brain-derived neurotrophic f
A;Reference number: A61115; MUID:91339743; PMID:1874171
A;Accession: A61115
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-65,'M',67-247 <ROS>
R;Shintani, A.; Ono, Y.; Kaisho, Y.; Igarashi, K.
Biochem. Biophys. Res. Commun. 182, 325-332, 1992
A;Title: Characterization of the 5'-flanking region of the human brain-derived neurotrop
A;Reference number: I38072; MUID:92118032; PMID:1339267
A;Accession: I38072
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-247 <SHI>
A;Cross-references: EMBL:X60201; NID:g3928269; PIDN:CAA42761.1; PID:g496626
A;Note: the authors do not discuss this mRNA sequence in this reference; attribution is
C;Genetics:
A;Gene: GDB:BDNF
A;Cross-references: GDB:125916; OMIM:113505
A;Map position: 11p13-11p13
C;Superfamily: nerve growth factor beta chain
C;Keywords: dimer; glycoprotein
F;1-16/Domain: signal sequence #status predicted <SIG>
F;17-128/Domain: propeptide #status predicted <PRO>
F;129-247/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;121/Binding site: carbohydrate (Asn) (covalent) #status experimental

  Query Match             49.4%;  Score 345;  DB 2;  Length 247;
  Best Local Similarity   53.7%;  Pred. No. 3.4e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 188

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
                |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     189 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 244

Qy     127 TGR 129
           ||
Db     245 RGR 247


RESULT 9
S12555
brain-derived neurotrophic factor - mouse
N;Alternate names: BDNF protein
C;Species: Mus musculus (house mouse)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
C;Accession: S12555; S51180; S51181
R;Hofer, M.; Pagliusi, S.R.; Hohn, A.; Leibrock, J.; Barde, Y.A.
EMBO J. 9, 2459-2464, 1990
A;Title: Regional distribution of brain-derived neurotrophic factor mRNA in the adult
A;Reference number: S12555; MUID:90316101; PMID:2369898
A;Accession: S12555
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-249 <HOF>
A;Cross-references: GB:X55573; NID:g287898; PIDN:CAA39159.1; PID:g287899
R;Kolbeck, R.; Jungbluth, S.; Barde, Y.A.
Eur. J. Biochem. 225, 995-1003, 1994
A;Title: Characterisation of neurotrophin dimers and monomers.
A;Reference number: S51179; MUID:95045576; PMID:7957235
A;Accession: S51180
A;Status: preliminary
A;Molecule type: protein
A;Residues: 131-135 <KOL>
A;Accession: S51181
A;Status: preliminary
A;Molecule type: protein
A;Residues: 112-121 <KO2>
C;Superfamily: nerve growth factor beta chain

  Query Match             49.4%;  Score 345;  DB 2;  Length 249;
  Best Local Similarity   53.7%;  Pred. No. 3.4e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     135 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 190

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
                |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     191 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 246

Qy     127 TGR 129
           ||
Db     247 RGR 249


RESULT 10
B40304
brain-derived neurotrophic factor precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 03-Apr-1992 #sequence_revision 30-Sep-1993 #text_change 16-Jul-1999
```

```
C;Accession: B60536; B40304; S24955; I60275; I60545
R;Yancopoulos, G.D.; Maisonpierre, P.C.; Ip, N.Y.; Aldrich, T.H.; Belluscio, L.; Boulton
Cold Spring Harb. Symp. Quant. Biol. 55, 371-379, 1990
A;Title: Neurotrophic factors, their receptors, and the signal transduction pathways the
A;Reference number: A60536; MUID:92111157; PMID:1966766
A;Accession: B60536
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-249 <YAN>
R;Maisonpierre, P.C.; Le Beau, M.M.; Espinosa III, R.; Ip, N.Y.; Belluscio, L.; de la Mo
Genomics 10, 558-568, 1991
A;Title: Human and rat brain-derived neurotrophic factor and neurotrophin-3: gene struct
A;Reference number: A40304; MUID:91365361; PMID:1889806
A;Accession: B40304
A;Molecule type: mRNA
A;Residues: 1-249 <MAI>
A;Cross-references: GB:M61175; NID:g203122; PIDN:AAA16841.1; PID:g203123
R;Metsis, M.
submitted to the EMBL Data Library, June 1992
A;Reference number: S24955
A;Accession: S24955
A;Molecule type: mRNA
A;Residues: 8-249 <MET>
A;Cross-references: EMBL:X67108; NID:g55820; PIDN:CAA47481.1; PID:g55821
R;Ohara, O.; Gahara, Y.; Teraoka, H.; Kitamura, T.
Gene 121, 383-386, 1992
A;Title: A rat brain-derived neurotrophic factor-enconding gene generates multiple trans
A;Reference number: I60275; MUID:93077058; PMID:1446835
A;Accession: I60275
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-249 <RES>
A;Cross-references: GB:D10938; NID:g220996; PIDN:BAA01732.1; PID:g286257
R;Timmusk, T.; Palm, K.; Metsis, M.; Reintam, T.; Paalme, V.; Saarma, M.; Persson, H.
Neuron 10, 475-489, 1993
A;Title: Multiple promoters direct tissue-specific expression of the rat BDNF gene.
A;Reference number: I60545; MUID:93213504; PMID:8461137
A;Accession: I60545
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 8-249 <RE2>
A;Cross-references: EMBL:X67108; NID:g55820; PIDN:CAA47481.1; PID:g55821
C;Genetics:
A;Gene: BDNF
C;Superfamily: nerve growth factor beta chain

  Query Match             49.4%;  Score 345;  DB 2;  Length 249;
  Best Local Similarity   53.7%;  Pred. No. 3.4e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
          :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db    135 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 190

Qy     67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
               |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db    191 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 246

Qy    127 TGR 129
           ||
Db    247 RGR 249


RESULT 11
A30361
brain-derived neurotrophic factor precursor - pig
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 18-Oct-1989 #sequence_revision 18-Oct-1989 #text_change 16-Jul-1999
C;Accession: A30361
R;Leibrock, J.; Lottspeich, F.; Hohn, A.; Hofer, M.; Hengerer, B.; Masiakowski, P.; Thoe
Nature 341, 149-152, 1989
A;Title: Molecular cloning and expression of brain-derived neurotrophic factor.
A;Reference number: A30361; MUID:89384868; PMID:2779653
A;Accession: A30361
A;Molecule type: mRNA
A;Residues: 1-252 <LEI>
A;Cross-references: GB:X16713; NID:g1903; PIDN:CAA34685.1; PID:g1904
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein; growth factor
F;126/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             49.4%;  Score 345;  DB 2;  Length 252;
  Best Local Similarity   53.7%;  Pred. No. 3.4e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
          :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db    138 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 193

Qy     67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
               |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db    194 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 249

Qy    127 TGR 129
           ||
Db    250 RGR 252


RESULT 12
JC6183
brain-derived neurotrophic factor precursor - bovine
C;Species: Bos primigenius taurus (cattle)
C;Date: 02-Sep-1997 #sequence_revision 05-Sep-1997 #text_change 20-Jun-2000
C;Accession: JC6183
R;Arab, S.F.; Krohn, K.; Lachmund, A.; Unsicker, K.; Suter-Crazzolara, C.
Gene 185, 95-98, 1997
A;Title: The gene encoding bovine brain-derived neurotrophic factor (BDNF).
A;Reference number: JC6183; MUID:97186702; PMID:9034318
A;Accession: JC6183
A;Molecule type: mRNA
A;Residues: 1-248 <ARA>
A;Cross-references: EMBL:X97914; NID:g1668709; PIDN:CAA66488.1; PID:g1668710
A;Experimental source: adrenal glands
C;Comment: This factor plays the essential roles in the regulation of neuron survival
dopaminergic, glutamatergic, and cholinergic neurons, and it is effective in the trea
C;Superfamily: nerve growth factor beta chain
C;Keywords: neurotrophic factor
F;1-16/Domain: signal sequence #status predicted <SIG>
F;17-248/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;198-211/Region: nerve growth factor signature

  Query Match             49.0%;  Score 342;  DB 2;  Length 248;
  Best Local Similarity   53.7%;  Pred. No. 6.6e-26;
  Matches   66;  Conservative   21;  Mismatches   26;  Indels   10;  Gaps    3;

Qy      9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
          :|||||:|||::| |||  |:| |||: |  | || :|| : |  |:|||:||:|
Db    134 ARRGELSVCDSISEWVTAADKRLAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 189

Qy     67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
               |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db    190 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 245

Qy    127 TGR 129
           ||
Db    246 RGR 248


RESULT 13
I51708
brain-derived neurotrophic factor precursor - southern platyfish
C;Species: Xiphophorus maculatus (southern platyfish)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51708; S26673
R;Gotz, R.; Raulf, F.; Schartl, M.
J. Neurochem. 59, 432-442, 1992
```

```
A;Title: Brain-derived neurotrophic factor is more highly conserved in structure and fun
A;Reference number: I51708; MUID:92333301; PMID:1629719
A;Accession: I51708
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-269 <GOT>
A;Cross-references: EMBL:X59942; NID:g65275; PIDN:CAA42567.1; PID:g65276
C;Genetics:
A;Gene: BDNF
C;Superfamily: nerve growth factor beta chain
C;Keywords: glycoprotein
F;1-18/Domain: signal sequence #status predicted <SIG>
F;19-150/Domain: propeptide #status predicted <PRO>
F;151-269/Product: brain-derived neurotrophic factor #status predicted <MAT>
F;143/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;163-230,208-259,218-261/Disulfide bonds: #status predicted

  Query Match             48.7%;  Score 340;  DB 2;  Length 269;
  Best Local Similarity   51.2%;  Pred. No. 1.1e-25;
  Matches   63;  Conservative   25;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           ||||||:|||::| |||  |::||:|: |: | |: :||   |  |:|||:||:|
Db     155 SRRGELSVCDSISQWVTAVDKKTAIDMSGQTVTVMEKVPVPNGQ-LKQYFYETKCNP--- 210

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |    ||||:|:||: |:|:  |||||||  :: ::|||:|||||:|||||  :
Db     211 ----MGYTKDGCRGIDKRHYTSQCRTTQSYVRALTMDSKKKIGWRFIRIDTSCVCTLTIK 266

Qy     127 TGR 129
           ||
Db     267 RGR 269


RESULT 14
I84765
brain-derived neurotrophic factor - rhesus macaque (fragment)
C;Species: Macaca mulatta (rhesus macaque)
C;Date: 04-Sep-1997 #sequence_revision 13-Mar-1998 #text_change 16-Jul-1999
C;Accession: I84765
R;Isackson, P.J.; Towner, M.D.; Huntsman, M.M.
FEBS Lett. 285, 260-264, 1991
A;Title: Comparison of mammalian, chicken and Xenopus brain-derived neurotrophic factor
A;Reference number: I50606; MUID:91309745; PMID:1906813
A;Accession: I84765
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-114 <ISA>
A;Cross-references: EMBL:X61475; NID:g288317; PIDN:CAA43703.1; PID:g288318
C;Superfamily: nerve growth factor beta chain
C;Keywords: brain; growth factor

  Query Match             48.1%;  Score 336;  DB 2;  Length 114;
  Best Local Similarity   54.7%;  Pred. No. 1.2e-25;
  Matches   64;  Conservative   21;  Mismatches   22;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::|||| | | || :|| : |  |:|||:||:|
Db       6 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 61

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTL 123
             |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||
Db      62 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTL 114


RESULT 15
I50606
brain-derived neurotrophic factor - chicken (fragment)
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I50606
R;Isackson, P.J.; Towner, M.D.; Huntsman, M.M.
FEBS Lett. 285, 260-264, 1991
A;Title: Comparison of mammalian, chicken and Xenopus brain-derived neurotrophic fact
A;Reference number: I50606; MUID:91309745; PMID:1906813
A;Accession: I50606
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-114 <ISA>
A;Cross-references: EMBL:X61476; NID:g288305; PIDN:CAA43704.1; PID:g288306
C;Superfamily: nerve growth factor beta chain

  Query Match             46.8%;  Score 327;  DB 2;  Length 114;
  Best Local Similarity   54.7%;  Pred. No. 8.9e-25;
  Matches   64;  Conservative   18;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||: | |||  :::|||||: |  | || :||   |  |:|||:||:|
Db       6 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQ-LKQYFYETKCNP--- 61

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTL 123
             |    ||||:|:||| |:|:  |||||||   : |||||:|||||:|||||
Db      62 ----KGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTL 114


Search completed: December  2, 2002, 15:14:01
Job time : 11.3634 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:43 ; Search time 5.33411 Seconds
(without alignments)
1010.837 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	689	98.7	210	1	NT5_HUMAN	P34130 homo sapien
2	663	95.0	209	1	NT5_RAT	P34131 rattus norv
3	501.5	71.8	186	1	NT6G_HUMAN	P34134 homo sapien
4	494.5	70.8	257	1	NT6A_HUMAN	P34132 homo sapien
5	478.5	68.6	257	1	NT6B_HUMAN	P34133 homo sapien
6	415	59.5	236	1	NT4_XENLA	P24727 xenopus lae
7	358	51.3	257	1	NT3_CHICK	P25433 gallus gall
8	358	51.3	257	1	NT3_HUMAN	P20783 homo sapien
9	358	51.3	258	1	NT3_MOUSE	P20181 mus musculu
10	358	51.3	258	1	NT3_RAT	P18280 rattus norv
11	356	51.0	257	1	NT3_FELCA	Q9tst2 felis silve
12	355	50.9	260	1	NT3_XENLA	P25435 xenopus lae
13	346	49.6	255	1	BDNF_CAVPO	O70183 cavia porce
14	345	49.4	247	1	BDNF_HUMAN	P23560 homo sapien
15	345	49.4	247	1	BDNF_PROLO	O18755 procyon lot
16	345	49.4	247	1	BDNF_URSAR	O18752 ursus arcto
17	345	49.4	247	1	BDNF_URSML	O18753 ursus malay
18	345	49.4	249	1	BDNF_MOUSE	P21237 mus musculu
19	345	49.4	249	1	BDNF_RAT	P23363 rattus norv
20	345	49.4	252	1	BDNF_PIG	P14082 sus scrofa
21	344	49.3	247	1	BDNF_FELCA	Q9tst3 felis silve
22	342	49.0	248	1	BDNF_BOVIN	Q95106 bos taurus
23	340	48.7	269	1	BDNF_XIPMA	Q02193 xiphophorus
24	336	48.1	114	1	BDNF_MACMU	Q06225 macaca mula
25	336	48.1	246	1	BDNF_CHICK	P25429 gallus gall
26	335	48.0	270	1	BDNF_CYPCA	Q90322 cyprinus ca
27	315	45.1	114	1	BDNF_XENLA	P25432 xenopus lae
28	314.5	45.1	231	1	NGF_BOVIN	P13600 bos taurus
29	308.5	44.2	241	1	NGF_RAT	P25427 rattus norv
30	307.5	44.1	229	1	NGF_PIG	Q29074 sus scrofa
31	305.5	43.8	241	1	NGF_MOUSE	P01139 mus musculu
32	305.5	43.8	241	1	NGF_PRANA	P20675 praomys nat
33	302.5	43.3	243	1	NGF_CHICK	P05200 gallus gall
34	297.5	42.6	241	1	NGF_HUMAN	P01138 homo sapien
35	295.5	42.3	241	1	NGF_CAVPO	P19093 cavia porce
36	290	41.5	231	1	NGF_XENLA	P21617 xenopus lae
37	269.5	38.6	243	1	NGF_BUNMU	P34128 bungarus mu
38	264.5	37.9	117	1	NGF_DABRR	P30894 daboia russ
39	262	37.5	116	1	NGF_NAJNA	P01140 naja naja (
40	252	36.1	116	1	NGF_NAJAT	P21377 naja atra (
41	241.5	34.6	194	1	NGF_XIPMA	P34129 xiphophorus
42	235	33.7	140	1	NT7_CYPCA	O93474 cyprinus ca
43	228	32.7	233	1	NT7_BRARE	O73797 brachydanio
44	153	21.9	43	1	NT4_VIPLE	P25436 vipera lebe
45	119	17.0	43	1	BDNF_RAJCL	P25430 raja clavat

ALIGNMENTS

RESULT 1
NT5_HUMAN
ID NT5_HUMAN STANDARD; PRT; 210 AA.
AC P34130;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Neurotrophin-5 precursor (NT-5) (Neutrophic factor 5) (Neurotrophin-4)
DE (NT-4) (Neutrophic factor 4).
GN NTF5 OR NTF4.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Prostate;
RX MEDLINE=92212967; PubMed=1313578;
RA Ip N.Y., Ibanez C.F., Nye S.H., McClain J., Jones P.F., Gies D.R.,
RA Belluscio L., le Beau M.M., Espinosa R. III, Squinto S.P., Persson H.,
RA Yancopoulos G.D.;
RT "Mammalian neurotrophin-4: structure, chromosomal localization,
RT tissue distribution, and receptor specificity.";
RL Proc. Natl. Acad. Sci. U.S.A. 89:3060-3064(1992).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=92075279; PubMed=1742028;
RA Berkemeier L.R., Winslow J.W., Kaplan D.R., Nikolics K., Goeddel D.V.,
RA Rosenthal A.;
RT "Neurotrophin-5: a novel neurotrophic factor that activates trk and
RT trkB.";
RL Neuron 7:857-866(1991).
RN [3]
RP X-RAY CRYSTALLOGRAPHY (2.75 ANGSTROMS).
RX MEDLINE=20095835; PubMed=10631974;
RA Robinson R.C., Radziejewski C., Spraggon G., Greenwald J.,
RA Kostura M.R., Burtnick L.D., Stuart D.I., Choe S., Jones E.Y.;
RT "The structures of the neurotrophin 4 homodimer and the brain-derived
RT neurotrophic factor/neurotrophin 4 heterodimer reveal a common Trk-
RT binding site.";
RL Protein Sci. 8:2589-2597(1999).
CC -!- FUNCTION: TARGET-DERIVED SURVIVAL FACTOR FOR PERIPHERAL SENSORY
CC SYMPATHETIC NEURONS.
CC -!- TISSUE SPECIFICITY: HIGHEST LEVELS IN PROSTATE, LOWER LEVELS
CC IN THYMUS, PLACENTA, AND SKELETAL MUSCLE. EXPRESSED IN EMBRYONIC
CC AND ADULT TISSUES.
CC -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC ---

CC ---

```
DR   EMBL; M86528; AAA60154.1; -.
DR   PIR; JH0503; JH0503.
DR   PIR; A42687; A42687.
DR   PDB; 1B8M; 09-FEB-99.
DR   PDB; 1B98; 26-FEB-99.
DR   Genew; HGNC:8024; NTF5.
DR   MIM; 162662; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; 3D-structure.
FT   SIGNAL        1     24       POTENTIAL.
FT   PROPEP       25     80
FT   CHAIN        81    210       NEUROTROPHIN-5.
FT   DISULFID     97    170
FT   DISULFID    141    199
FT   DISULFID    158    201
FT   CARBOHYD     76     76       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   210 AA;  22426 MW;  DBC6A30195E139AD CRC64;

  Query Match             98.7%;  Score 689;  DB 1;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 5.5e-60;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 2
NT5_RAT
ID   NT5_RAT        STANDARD;      PRT;   209 AA.
AC   P34131;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Neurotrophin-5 precursor (NT-5) (Neutrophic factor 5) (Neurotrophin-4)
DE   (NT-4) (Neutrophic factor 4).
GN   NTF5 OR NTF4 OR NT4.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92212967; PubMed=1313578;
RA   Ip N.Y., Ibanez C.F., Nye S.H., McClain J., Jones P.F., Gies D.R.,
RA   Belluscio L., le Beau M.M., Espinosa R. III, Squinto S.P., Persson H.,
RA   Yancopoulos G.D.;
RT   "Mammalian neurotrophin-4: structure, chromosomal localization,
RT   tissue distribution, and receptor specificity.";
RL   Proc. Natl. Acad. Sci. U.S.A. 89:3060-3064(1992).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92075279; PubMed=1742028;
RA   Berkemeier L.R., Winslow J.W., Kaplan D.R., Nikolics K., Goeddel D.V.,
RA   Rosenthal A.;
RT   "Neurotrophin-5: a novel neurotrophic factor that activates trk and
RT   trkB.";
RL   Neuron 7:857-866(1991).
CC   -!- FUNCTION: COULD SERVE AS A TARGET-DERIVED TROPHIC FACTOR FOR
CC       SENSORY AND SYMPATHETIC NEURONS.
CC   -!- TISSUE SPECIFICITY: EXPRESSED IN THYMUS, MUSCLE, OVARY, BRAIN,
CC       HEART, STOMACH AND KIDNEY. EXPRESSED IN BOTH EMBRYO AND ADULT
CC       TISSUES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M86742; AAA41728.1; -.
DR   EMBL; S69323; AAB20548.1; -.
DR   PIR; JH0504; JH0504.
DR   PIR; B42687; B42687.
DR   HSSP; P34130; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     21       POTENTIAL.
FT   PROPEP       22     79
FT   CHAIN        80    209       NEUROTROPHIN-5.
FT   DISULFID     96    169       BY SIMILARITY.
FT   DISULFID    140    198       BY SIMILARITY.
FT   DISULFID    157    200       BY SIMILARITY.
FT   CARBOHYD     75     75       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CONFLICT    177    177       R -> P (IN REF. 2).
SQ   SEQUENCE   209 AA;  22332 MW;  DF5112C05C5D5B85 CRC64;

  Query Match             95.0%;  Score 663;  DB 1;  Length 209;
  Best Local Similarity   94.6%;  Pred. No. 1.8e-57;
  Matches  123;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      80 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 139

Qy      61 CKADNAEEGGPGAGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||::| ||||| |||||||||||||:||||||||||||||| :|||||||||||||||
Db     140 CKAESAGEGGPGVGGGGCRGVDRRHWLSECKAKQSYVRALTADSQGRVGWRWIRIDTACV 199

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     200 CTLLSRTGRA 209


RESULT 3
NT6G_HUMAN
ID   NT6G_HUMAN     STANDARD;      PRT;   186 AA.
AC   P34134;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-6 gamma (NT-6 gamma) (Fragment).
GN   NTF6G.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Fetal;
RX   MEDLINE=92358359; PubMed=1496419;
RA   Berkemeier L.R., Oezcelik T., Francke U., Rosenthal A.;
RT   "Human chromosome 19 contains the neurotrophin-5 gene locus and three
```

```
RT   related genes that may encode novel acidic neurotrophins.";
RL   Somat. Cell Mol. Genet. 18:233-245(1992).
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES (BY
CC       SIMILARITY).
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S41541; AAB22781.1; -.
DR   HSSP; P34130; 1B98.
DR   Genew; HGNC:8027; NTF6G.
DR   MIM; 604023; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; PARTIAL.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   NON_TER       1      1
FT   DISULFID     72    146       BY SIMILARITY.
FT   CARBOHYD     51     51       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   186 AA;  19553 MW;  B584396F5AA4981C CRC64;

  Query Match             71.8%;  Score 501.5;  DB 1;  Length 186;
  Best Local Similarity   77.1%;  Pred. No. 7.5e-42;
  Matches  101;  Conservative    6;  Mismatches   23;  Indels    1;  Gaps    1;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           |||:|:||| :|||||||||| |||| ||||||   |||||||||||| | | |:|| |
Db      56 GVSDTSPASHQGELAVCDAVSVWVTDPRTAVDLVVLEVEVLGEVPAAGSSSLHQHFFVTC 115

Qy      61 CKADNAEEGGPGAGGGGCRGV-DRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTAC 119
            ||||:|||||| |||   ||    |||||||||||||||||| ||||| ||||:  |||
Db     116 FKADNSEEGGPGVGGGAAAGVWTGGHWVSECKAKQSYVRALTADAQGRVDWRWIQTGTAC 175

Qy     120 VCTLLSRTGRA 130
           ||||||||||
Db     176 VCTLLSRTGRA 186


RESULT 4
NT6A_HUMAN
ID   NT6A_HUMAN     STANDARD;      PRT;   257 AA.
AC   P34132;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-6 alpha (NT-6 alpha) (Fragment).
GN   NTF6A.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Fetal;
RX   MEDLINE=92358359; PubMed=1496419;
RA   Berkemeier L.R., Oezcelik T., Francke U., Rosenthal A.;
RT   "Human chromosome 19 contains the neurotrophin-5 gene locus and three
RT   related genes that may encode novel acidic neurotrophins.";
RL   Somat. Cell Mol. Genet. 18:233-245(1992).
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES (BY
CC       SIMILARITY).
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; S41522; AAB22779.1; -.
DR   HSSP; P34130; 1B98.
DR   Genew; HGNC:8025; NTF6A.
DR   MIM; 604021; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; PARTIAL.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Polymorphism.
FT   NON_TER       1      1
FT   DISULFID    143    217       BY SIMILARITY.
FT   CARBOHYD    122    122       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARIANT     186    186       R -> H.
FT                                /FTId=VAR_004627.
FT   VARIANT     242    242       I -> T.
FT                                /FTId=VAR_004628.
SQ   SEQUENCE   257 AA;  27246 MW;  74AE6C038D78A3BB CRC64;

  Query Match             70.8%;  Score 494.5;  DB 1;  Length 257;
  Best Local Similarity   76.3%;  Pred. No. 5e-41;
  Matches  100;  Conservative    7;  Mismatches   23;  Indels    1;  Gaps    1;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           |||:|:||| :|||||||||| |||| ||||||   |||||||||||| || |||:||  |
Db     127 GVSDTSPASHQGELAVCDAVSVWVTDPWTAVDLGVLEVEVLGEVPAAVGSSLRQHFFVAR 186

Qy      61 CKADNAEEGGPGAGGGGCRGV-DRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTAC 119
            :|| :|||||| |||   ||    |||||||||||||||||| ||||| ||||:| |||
Db     187 FEADKSEEGGPGVGGGAAAGVWTGGHWVSECKAKQSYVRALTADAQGRVDWRWIQIGTAC 246

Qy     120 VCTLLSRTGRA 130
           ||||||||||
Db     247 VCTLLSRTGRA 257


RESULT 5
NT6B_HUMAN
ID   NT6B_HUMAN     STANDARD;      PRT;   257 AA.
AC   P34133;
DT   01-FEB-1994 (Rel. 28, Created)
DT   01-FEB-1994 (Rel. 28, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-6 beta (NT-6 beta) (Fragment).
GN   NTF6B.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Fetal;
RX   MEDLINE=92358359; PubMed=1496419;
RA   Berkemeier L.R., Oezcelik T., Francke U., Rosenthal A.;
RT   "Human chromosome 19 contains the neurotrophin-5 gene locus and three
RT   related genes that may encode novel acidic neurotrophins.";
RL   Somat. Cell Mol. Genet. 18:233-245(1992).
CC   -!- SUBUNIT: HOMODIMER, ASSOCIATED BY NONCOVALENT FORCES (BY
CC       SIMILARITY).
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
```

```
CC   modified and this statement is not removed.  Usage  by  and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; S41540; AAB22780.1; -.
DR   HSSP; P34130; 1B98.
DR   Genew; HGNC:8026; NTF6B.
DR   MIM; 604022; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; PARTIAL.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor.
FT   NON_TER       1      1
FT   DISULFID    143    217       BY SIMILARITY.
FT   CARBOHYD    122    122       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  27419 MW;  2EA9320918AE505B CRC64;

  Query Match             68.6%;  Score 478.5;  DB 1;  Length 257;
  Best Local Similarity   73.3%;  Pred. No. 1.8e-39;
  Matches   96;  Conservative    9;  Mismatches   25;  Indels    1;  Gaps    1;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           |||:|:| | :|||||||||: ||||  |||||   |||||||||||| | |||:|| ||
Db     127 GVSDTSPVSHQGELAVCDAVTVWVTDPWTAVDLGVLEVEVLGEVPAAGSSSLRQHFFVTR 186

Qy      61 CKADNAEEGGPGAGGGGCRGV-DRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTAC 119
            :|| ::||||| |||   ||    ||||||||||||| ||||  ||||| ||||:| |||
Db     187 FEADKSKEGGPGVGGGPAAGVWTGGHWVSECKAKQSYGRALTTDAQGRVDWRWIQIGTAC 246

Qy     120 VCTLLSRTGRA 130
           ||||||||||
Db     247 VCTLLSRTGRA 257


RESULT 6
NT4_XENLA
ID   NT4_XENLA      STANDARD;      PRT;   236 AA.
AC   P24727;
DT   01-MAR-1992 (Rel. 21, Created)
DT   01-MAR-1992 (Rel. 21, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-4 precursor (NT-4).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Ovary;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: NT-4 COULD PLAY A ROLE IN OOGENESIS AND/OR EARLY
CC       EMBRYOGENESIS. NT-4 INTERACTS WITH THE LOW AFFINITY NGF RECEPTOR
CC       AND ELICITS NEURITE OUTGROWTH FROM EXPLANTED DORSAL ROOT GANGLIA
CC       WITH NO AND LOWER ACTIVITY IN SYMPATHETIC AND NODOSE GANGLIA,
CC       RESPECTIVELY.
CC   -!- TISSUE SPECIFICITY: OVARY.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between  the Swiss Institute of Bioinformatics  and the  EMBL outstation -
CC   the European Bioinformatics Institute.  There are no  restrictions on  its
CC   use  by  non-profit  institutions as long  as its content  is  in  no  way
CC   modified and this statement is not removed.  Usage  by  and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; Z30090; CAA82906.1; -.
DR   PIR; JH0400; JH0400.
DR   HSSP; P34130; 1B98.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    113
FT   CHAIN       114    236       NEUROTROPHIN-4.
FT   DISULFID    131    196       BY SIMILARITY.
FT   DISULFID    174    225       BY SIMILARITY.
FT   DISULFID    184    227       BY SIMILARITY.
FT   CARBOHYD     47     47       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    106    106       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   236 AA;  26213 MW;  A210F97F2016357D CRC64;

  Query Match             59.5%;  Score 415;  DB 1;  Length 236;
  Best Local Similarity   63.0%;  Pred. No. 2.3e-33;
  Matches   80;  Conservative   15;  Mismatches   24;  Indels    8;  Gaps    2;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           |::   ||||||:|||:|: ||||:||||| ||: | |: |:    | ||:||||||:|
Db     117 SDSVSLSRRGELSVCDSVNVWVTDKRTAVDDRGKIVTVMSEIQTLTG-PLKQYFFETKCN 175

Qy      63 ADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
                     |:   ||||||:: |:|||||||||||||  |   ||||||||||||||
Db     176 PS-------GSTTRGCRGVDKKQWISECKAKQSYVRALTIDANKLVGWRWIRIDTACVCT 228

Qy     123 LLSRTGR 129
           |||||||
Db     229 LLSRTGR 235


RESULT 7
NT3_CHICK
ID   NT3_CHICK      STANDARD;      PRT;   257 AA.
AC   P25433;
DT   01-MAY-1992 (Rel. 22, Created)
DT   01-DEC-1992 (Rel. 24, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=93091238; PubMed=1457809;
RA   Maisonpierre P., Belluscio L., Conover J.C., Yancopoulos G.D.;
RT   "Gene sequences of chicken BDNF and NT-3.";
RL   DNA Seq. 3:49-54(1992).
RN   [2]
RP   SEQUENCE OF 194-236 FROM N.A.
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
```

```
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; M83378; AAA60880.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217       BY SIMILARITY.
FT   DISULFID    195    246       BY SIMILARITY.
FT   DISULFID    205    248       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29701 MW;  EE043BA2A005C1E7 CRC64;

  Query Match             51.3%;  Score 358;  DB 1;  Length 257;
  Best Local Similarity   55.4%;  Pred. No. 8.6e-28;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| :|||: | |||| : :|:|:|| :| |||| :   | ||::|||:|||||     |
Db     144 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 197

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
             |     ||||:| :|| |:||  |:||||||:     ||||||||||:||| |  : |
Db     198 AKPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 255

Qy     129 R 129
           |
Db     256 R 256


RESULT 8
NT3_HUMAN
ID   NT3_HUMAN      STANDARD;      PRT;   257 AA.
AC   P20783;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90262727; PubMed=2344409;
RA   Rosenthal A., Goeddel D.V., Nguyen T., Lewis M., Shih A.,
RA   Laramee G.R., Nikolics K., Winslow J.W.;
RT   "Primary structure and biological activity of a novel human
RT   neurotrophic factor.";
RL   Neuron 4:767-773(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91045937; PubMed=2236018;
RA   Jones K.R., Reichardt L.F.;
RT   "Molecular cloning of a human gene that is a member of the nerve
RT   growth factor family.";
RL   Proc. Natl. Acad. Sci. U.S.A. 87:8060-8064(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90306351; PubMed=2365067;
RA   Kaisho Y., Yoshimura K., Nakahama K.;
RT   "Cloning and expression of a cDNA encoding a novel human neurotrophic
RT   factor.";
RL   FEBS Lett. 266:187-191(1990).
RN   [4]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [5]
RP   SEQUENCE OF 194-236 FROM N.A.
RC   TISSUE=Leukocyte;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
RN   [6]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=95217877; PubMed=7703225;
RA   Robinson R.C., Radziejewski C., Stuart D.I., Jones E.Y.;
RT   "Structure of the brain-derived neurotrophic factor/neurotrophin 3
RT   heterodimer.";
RL   Biochemistry 34:4139-4146(1995).
RN   [7]
RP   VARIANT GLU-76.
RX   MEDLINE=95251647; PubMed=7733919;
RA   Hattori M., Nanko S.;
RT   "Association of neurotrophin-3 gene variant with severe forms of
RT   schizophrenia.";
RL   Biochem. Biophys. Res. Commun. 209:513-518(1995).
RN   [8]
RP   VARIANT GLU-76.
RX   MEDLINE=96253892; PubMed=8925252;
RA   Arinami T., Takekoshi K., Itokawa M., Hamaguchi H., Toru M.;
RT   "Failure to find associations of the CA repeat polymorphism in the
RT   first intron and the Gly-63/Glu-63 polymorphism of the neurotrophin-3
RT   gene with schizophrenia.";
RL   Psychiatr. Genet. 6:13-15(1996).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- POLYMORPHISM: Variant Glu-76 (frequently reported as Glu-63) was
CC       thought to be associated with severe forms of schizophrenia. This
CC       does not seem to be the case.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; X53655; CAA37703.1; -.
DR   EMBL; M37763; AAA59953.1; -.
DR   EMBL; M61180; AAA63231.1; -.
DR   PIR; JH0141; JH0141.
DR   PIR; A36208; A36208.
DR   PIR; S10719; S10719.
DR   PIR; C40304; C40304.
DR   PDB; 1BND; 04-APR-96.
DR   PDB; 1B8K; 09-FEB-99.
```

```
DR   Genew; HGNC:8023; NTF3.
DR   MIM; 162660; -.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; Polymorphism; 3D-structure.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217
FT   DISULFID    195    246
FT   DISULFID    205    248
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARIANT      76     76       G -> E.
FT                                /FTId=VAR_012084.
SQ   SEQUENCE   257 AA;  29354 MW;  39A5BB3B28E25E03 CRC64;

  Query Match             51.3%;  Score 358;  DB 1;  Length 257;
  Best Local Similarity   55.4%;  Pred. No. 8.6e-28;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db     144 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 197

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
               |     ||||:| :|| |:||  |:|||||:     ||||||||||:||| |  : |
Db     198 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 255

Qy     129 R 129
           |
Db     256 R 256


RESULT 9
NT3_MOUSE
ID   NT3_MOUSE      STANDARD;      PRT;   258 AA.
AC   P20181;
DT   01-FEB-1991 (Rel. 17, Created)
DT   01-FEB-1991 (Rel. 17, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3 OR NTF-3.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90190865; PubMed=2314473;
RA   Hohn A., Leibrock J., Bailey K., Barde Y.-A.;
RT   "Identification and characterization of a novel member of the nerve
RT   growth factor/brain-derived neurotrophic factor family.";
RL   Nature 344:339-341(1990).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; X53257; CAA37348.1; -.
DR   PIR; S09155; S09155.
DR   HSSP; P20783; 1B8K.
DR   MGD; MGI:97380; Ntf3.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    139
FT   CHAIN       140    258       NEUROTROPHIN-3.
FT   DISULFID    153    218       BY SIMILARITY.
FT   DISULFID    196    247       BY SIMILARITY.
FT   DISULFID    206    249       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   258 AA;  29587 MW;  7180D064E8AE6042 CRC64;

  Query Match             51.3%;  Score 358;  DB 1;  Length 258;
  Best Local Similarity   55.4%;  Pred. No. 8.6e-28;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db     145 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 198

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
               |     ||||:| :|| |:||  |:|||||:     ||||||||||:||| |  : |
Db     199 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 256

Qy     129 R 129
           |
Db     257 R 257


RESULT 10
NT3_RAT
ID   NT3_RAT        STANDARD;      PRT;   258 AA.
AC   P18280;
DT   01-NOV-1990 (Rel. 16, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3 OR NTF-3.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90319130; PubMed=2164684;
RA   Ernfors P., Ibanez C.F., Ebendal T., Olson L., Persson H.;
RT   "Molecular cloning and neurotrophic activities of a protein with
RT   structural similarities to nerve growth factor: developmental and
RT   topographical expression in the brain.";
RL   Proc. Natl. Acad. Sci. U.S.A. 87:5454-5458(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90208301; PubMed=2321006;
RA   Maisonpierre P.C., Belluscio L., Squinto S., Ip N.Y., Furth M.E.,
RA   Lindsay R.M., Yancopoulos G.D.;
RT   "Neurotrophin-3: a neurotrophic factor related to NGF and BDNF.";
RL   Science 247:1446-1451(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
```

```
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [4]
RP   SEQUENCE OF 195-237 FROM N.A.
RC   STRAIN=Sprague-Dawley; TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- TISSUE SPECIFICITY: BRAIN AND PERIPHERAL TISSUES.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M34643; AAA41313.1; -.
DR   EMBL; M33968; AAA41727.1; -.
DR   EMBL; M61179; AAA63497.1; -.
DR   PIR; A35781; A35781.
DR   PIR; A40094; A40094.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    139
FT   CHAIN       140    258       NEUROTROPHIN-3.
FT   DISULFID    153    218       BY SIMILARITY.
FT   DISULFID    196    247       BY SIMILARITY.
FT   DISULFID    206    249       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   258 AA;  29644 MW;  74D557CF8518A1CE CRC64;

  Query Match             51.3%;  Score 358;  DB 1;  Length 258;
  Best Local Similarity   55.4%;  Pred. No. 8.6e-28;
  Matches   67;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| :|||: | |||||: :|:|:|:| :| |||||:    | ||::|||:|||||     |
Db     145 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 198

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
             |     ||||:| :|| |:|| |:|||||:     ||||||||||:||| |  : |
Db     199 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 256

Qy     129 R 129
           |
Db     257 R 257


RESULT 11
NT3_FELCA
ID   NT3_FELCA      STANDARD;      PRT;   257 AA.
AC   Q9TST2;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF)
DE   (Nerve growth factor 2) (NGF-2).
GN   NTF3.
OS   Felis silvestris catus (Cat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX   NCBI_TaxID=9685;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20211727; PubMed=10745216;
RA   Lein E.S., Hohn A., Shatz C.J.;
RT   "Dynamic regulation of BDNF and NT-3 expression during visual system
RT   development.";
RL   J. Comp. Neurol. 420:1-18(2000).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF192538; AAF03424.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    138       BY SIMILARITY.
FT   CHAIN       139    257       NEUROTROPHIN-3.
FT   DISULFID    152    217       BY SIMILARITY.
FT   DISULFID    195    246       BY SIMILARITY.
FT   DISULFID    205    248       BY SIMILARITY.
FT   CARBOHYD    131    131       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   257 AA;  29403 MW;  EB53F7E59C5113E4 CRC64;

  Query Match             51.0%;  Score 356;  DB 1;  Length 257;
  Best Local Similarity   54.5%;  Pred. No. 1.3e-27;
  Matches   66;  Conservative   20;  Mismatches   27;  Indels    8;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| ::||: | ||||: :|:|:|:| :| ||||:  :| ||::|||:|||||     |
Db     144 SHRGEYSLCDSESLWVTDKSSAIDIRGHQVTVLGEI-KSGNSPVKQYFYETRCK-----E 197

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTG 128
             |     ||||:| :|| |:||  |:||||||:     ||||||||||:||| |  : |
Db     198 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDTSCVCALSRKIG 255

Qy     129 R 129
           |
Db     256 R 256


RESULT 12
NT3_XENLA
ID   NT3_XENLA      STANDARD;      PRT;   260 AA.
AC   P25435;
DT   01-MAY-1992 (Rel. 22, Created)
```

```
DT   01-NOV-1997 (Rel. 35, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Neurotrophin-3 precursor (NT-3) (Neurotrophic factor) (HDNF) (Nerve
DE   growth factor 2) (NGF-2).
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Brain;
RX   MEDLINE=97252639; PubMed=9096131;
RA   Xie K., Wang T., Olafsson P., Mizuno K., Lu B.;
RT   "Activity-dependent expression of NT-3 in muscle cells in culture:
RT   implications in the development of neuromuscular junctions.";
RL   J. Neurosci. 17:2947-2958(1997).
RN   [2]
RP   SEQUENCE OF 197-217 FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
CC   -!- FUNCTION: SEEMS TO PROMOTES THE SURVIVAL OF VISCERAL AND
CC       PROPRIOCEPTIVE SENSORY NEURONS.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U27576; AAB17723.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002400; GF_cysknot.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00438; GFCYSKNOT.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     16       POTENTIAL.
FT   PROPEP       17    141
FT   CHAIN       142    260       NEUROTROPHIN-3.
FT   DISULFID    155    220       BY SIMILARITY.
FT   DISULFID    198    249       BY SIMILARITY.
FT   DISULFID    208    251       BY SIMILARITY.
FT   CARBOHYD    134    134       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   260 AA;  30022 MW;  FFB8507A5EA93CC5 CRC64;

  Query Match             50.9%;  Score 355;  DB 1;  Length 260;
  Best Local Similarity   55.0%;  Pred. No. 1.7e-27;
  Matches   66;  Conservative   18;  Mismatches   28;  Indels    8;  Gaps    3;

Qy      11 RGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEEGG 70
           ||| :|||: | |||||  |:|:|| :| ||||:    | ||::|||:|||||     |
Db     149 RGEYSVCDSESLWVTDKMNAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----EAR 202

Qy      71 PGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSRTGRA 130
           |     ||||:| :|| |:|| |:|||||:     ||||||||||:||| |  : ||:
Db     203 PVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKMVGWRWIRIDTSCVCALSRKIGRS 260


RESULT 13
```

```
BDNF_CAVPO
ID   BDNF_CAVPO     STANDARD;      PRT;   255 AA.
AC   O70183;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=Hartley white; TISSUE=Liver;
RA   Inoue M., Nakayama C., Noguchi H.;
RL   Submitted (MAR-1998) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AB012097; BAA25176.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    136       BY SIMILARITY.
FT   CHAIN       137    255       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE         57     58       CLEAVAGE (BY SIP) (BY SIMILARITY).
FT   DISULFID    149    216       BY SIMILARITY.
FT   DISULFID    194    245       BY SIMILARITY.
FT   DISULFID    204    247       BY SIMILARITY.
FT   CARBOHYD    129    129       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   255 AA;  28308 MW;  BA95BA3EBBB8FA04 CRC64;

  Query Match             49.6%;  Score 346;  DB 1;  Length 255;
  Best Local Similarity   54.5%;  Pred. No. 1.2e-26;
  Matches   67;  Conservative   21;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||:|| |||  |::|||||: |  | || :|| : |  |:||||:|.|:|
Db     141 ARRGELSVCDSVSEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 196

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
                |    ||||:|:||| |:|:  ||||||||  :: |:|||:|||||:|||||  :
Db     197 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 252

Qy     127 TGR 129
           ||
Db     253 RGR 255


RESULT 14
BDNF_HUMAN
ID   BDNF_HUMAN     STANDARD;      PRT;   247 AA.
AC   P23560; Q9UC24; Q9BYY7;
DT   01-NOV-1991 (Rel. 20, Created)
```

```
DT   01-NOV-1991 (Rel. 20, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91045937; PubMed=2236018;
RA   Jones K.R., Reichardt L.F.;
RT   "Molecular cloning of a human gene that is a member of the nerve
RT   growth factor family.";
RL   Proc. Natl. Acad. Sci. U.S.A. 87:8060-8064(1990).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91365361; PubMed=1889806;
RA   Maisonpierre P.C., le Beau M.M., Espinosa R. III, Ip N.Y.,
RA   Belluscio L., de la Monte S.M., Squinto S., Furth M.E.,
RA   Yancopoulos G.D.;
RT   "Human and rat brain-derived neurotrophic factor and neurotrophin-3:
RT   gene structures, distributions, and chromosomal localizations.";
RL   Genomics 10:558-568(1991).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=92118032; PubMed=1339267;
RA   Shintani A., Ono Y., Kaisho Y., Igarashi K.;
RT   "Characterization of the 5'-flanking region of the human
RT   brain-derived neurotrophic factor gene.";
RL   Biochem. Biophys. Res. Commun. 182:325-332(1992).
RN   [4]
RP   SEQUENCE FROM N.A.
RA   Cheng Y., Gu J.;
RL   Submitted (MAY-1995) to the EMBL/GenBank/DDBJ databases.
RN   [5]
RP   SEQUENCE FROM N.A.
RA   Wu J., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.
RN   [6]
RP   SEQUENCE OF 185-227 FROM N.A.
RC   TISSUE=Leukocyte;
RX   MEDLINE=91222573; PubMed=2025430;
RA   Hallboeoek F., Ibanez C.F., Persson H.;
RT   "Evolutionary studies of the nerve growth factor family reveal a
RT   novel member abundantly expressed in Xenopus ovary.";
RL   Neuron 6:845-858(1991).
RN   [7]
RP   SEQUENCE OF 129-144.
RC   TISSUE=Serum;
RX   MEDLINE=96136633; PubMed=8527932;
RA   Rosenfeld R.D., Zeni L., Haniu M., Talvenheimo J., Radka S.F.,
RA   Bennett L., Miller J.A., Welcher A.A.;
RT   "Purification and identification of brain-derived neurotrophic factor
RT   from human serum.";
RL   Protein Expr. Purif. 6:465-471(1995).
RN   [8]
RP   SEQUENCE OF 12-197 FROM N.A.
RX   MEDLINE=21082082; PubMed=11214319;
RA   Murphy W.J., Eizirik E., Johnson W.E., Zhang Y.P., Ryder O.A.,
RA   O'Brien S.J.;
RT   "Molecular phylogenetics and the origins of placental mammals.";
RL   Nature 409:614-618(2001).
RN   [9]
RP   X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
RX   MEDLINE=95217877; PubMed=7703225;
RA   Robinson R.C., Radziejewski C., Stuart D.I., Jones E.Y.;
RT   "Structure of the brain-derived neurotrophic factor/neurotrophin 3
RT   heterodimer.";
RL   Biochemistry 34:4139-4146(1995).
RN   [10]
RP   CHARACTERIZATION, AND MUTAGENESIS OF ARG-54.
RX   MEDLINE=21201090; PubMed=11152678;
RA   Mowla S.J., Farhadi H.F., Pareek S., Atwal J.K., Morris S.J.,
RA   Seidah N.G., Murphy R.A.;
RT   "Biosynthesis and post-translational processing of the precursor to
RT   brain-derived neurotrophic factor.";
RL   J. Biol. Chem. 276:12660-12666(2001).
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- PTM: The propeptide is N-glycosylated and glycosulfated.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M37762; AAA51820.1; -.
DR   EMBL; M61176; AAA69805.2; -.
DR   EMBL; X60201; CAA42761.1; -.
DR   EMBL; AF400438; AAK92487.1; -.
DR   EMBL; M61181; AAA96140.1; -.
DR   EMBL; X91251; CAA62632.1; -.
DR   EMBL; AY011481; AAG47514.1; -.
DR   PIR; B36208; B36208.
DR   PIR; A40304; A40304.
DR   PDB; 1BND; 04-APR-96.
DR   PDB; 1B8M; 09-FEB-99.
DR   Genew; HGNC:1033; BDNF.
DR   MIM; 113505; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 2.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal; Glycoprotein; Polymorphism; 3D-structure.
FT   SIGNAL       1    18       POTENTIAL.
FT   PROPEP      19   128
FT   CHAIN      129   247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   DISULFID   141   208
FT   DISULFID   186   237
FT   DISULFID   196   239
FT   CARBOHYD   121   121       N-LINKED (GLCNAC. . .).
FT   SITE        57    58       CLEAVAGE (BY S1P).
FT   VARIANT     66    66       V -> M.
FT                              /FTId=VAR_004626.
FT   VARIANT     75    75       Q -> H (IN DBSNP:1048218).
FT                              /FTId=VAR_011797.
FT   VARIANT    125   125       R -> M (IN DBSNP:1048220).
FT                              /FTId=VAR_011798.
FT   VARIANT    127   127       R -> L (IN DBSNP:1048221).
FT                              /FTId=VAR_011799.
FT   MUTAGEN     54    54       R->A: ABOLISHES PROCESSING BY S1P.
SQ   SEQUENCE   247 AA;  27818 MW;  0A60488254722A99 CRC64;

  Query Match             49.4%;  Score 345;  DB 1;  Length 247;
  Best Local Similarity   53.7%;  Pred. No. 1.5e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 188

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
                |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     189 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 244

Qy     127 TGR 129
```

```
          ||
Db    245 RGR 247


RESULT 15
BDNF_PROLO
ID   BDNF_PROLO     STANDARD;      PRT;   247 AA.
AC   O18755;
DT   15-JUL-1998 (Rel. 36, Created)
DT   15-JUL-1998 (Rel. 36, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Brain-derived neurotrophic factor precursor (BDNF).
GN   BDNF.
OS   Procyon lotor (Raccoon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Procyonidae; Procyon.
OX   NCBI_TaxID=9654;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lin F.;
RL   Submitted (MAY-1997) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: PROMOTES THE SURVIVAL OF NEURONAL POPULATIONS THAT ARE
CC       ALL LOCATED EITHER IN THE CENTRAL NERVOUS SYSTEM OR DIRECTLY
CC       CONNECTED TO IT (BY SIMILARITY).
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: BELONGS TO THE NGF-BETA FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF003188; AAB71654.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
KW   Growth factor; Signal.
FT   SIGNAL        1     18       POTENTIAL.
FT   PROPEP       19    128       BY SIMILARITY.
FT   CHAIN       129    247       BRAIN-DERIVED NEUROTROPHIC FACTOR.
FT   SITE         57     58       CLEAVAGE (BY S1P) (BY SIMILARITY).
FT   DISULFID    141    208       BY SIMILARITY.
FT   DISULFID    186    237       BY SIMILARITY.
FT   DISULFID    196    239       BY SIMILARITY.
FT   CARBOHYD    121    121       N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ   SEQUENCE   247 AA;  27834 MW;  5FC377E4FE1F52A0 CRC64;

  Query Match             49.4%;  Score 345;  DB 1;  Length 247;
  Best Local Similarity   53.7%;  Pred. No. 1.5e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 188

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
               |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     189 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 244

Qy     127 TGR 129
           ||
Db     245 RGR 247


Search completed: December  2, 2002, 15:12:44

Job time : 5.33411 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 20.1172 Seconds
(without alignments)
1331.501 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	345	49.4	153	11	Q9CYL3	Q9cyl3 mus musculu
2	345	49.4	247	6	O97759	O97759 ailurus ful
3	345	49.4	249	11	Q8VHH4	Q8vhh4 mus musculu
4	336	48.1	177	13	Q9I8L2	Q9i8l2 poephila gu
5	334	47.9	246	13	Q8QG74	Q8qg74 cyclophiops
6	332	47.6	246	13	Q8QG75	Q8qg75 phrynocepha
7	328	47.0	246	13	Q8QG76	Q8qg76 japalura sp
8	327	46.8	270	13	Q9YH42	Q9yh42 brachydanio
9	323.5	46.3	324	13	Q9XY95	Q9xy95 lampetra fl
10	322	46.1	241	6	Q9N182	Q9n182 macaca fusc
11	317.5	45.5	247	13	Q8QG77	Q8qg77 tylototrito
12	297.5	42.6	241	4	Q9P2Q8	Q9p2q8 homo sapien
13	297.5	42.6	241	4	Q96P60	Q96p60 homo sapien
14	297.5	42.6	241	4	Q9UKL8	Q9ukl8 homo sapien
15	297.5	42.6	241	6	Q9N2F1	Q9n2f1 pan troglod
16	297.5	42.6	241	6	Q9N2F0	Q9n2f0 gorilla gor
17	297.5	42.6	241	6	Q9N2E9	Q9n2e9 pongo pygma
18	296	42.4	101	6	Q9TT22	Q9tt22 macaca fusc
19	277.5	39.8	294	11	Q91XB4	Q91xb4 mus musculu
20	266.5	38.2	217	6	Q9N183	Q9n183 macaca fusc
21	265.5	38.0	241	13	Q90W38	Q90w38 bothrops ja
22	262.5	37.6	241	13	Q9DEZ9	Q9dez9 crotalus du
23	228.5	32.7	286	13	Q91988	Q91988 xiphophorus
24	216	30.9	85	6	O02792	O02792 notoryctes
25	216	30.9	87	4	Q9P2Z4	Q9p2z4 homo sapien
26	213	30.5	85	6	O13114	O13114 isoodon mac
27	213	30.5	85	6	O13122	O13122 tarsipes ro
28	213	30.5	85	6	O02795	O02795 ornithorhyn
29	213	30.5	85	6	O02798	O02798 petaurus br
30	213	30.5	85	6	O13104	O13104 cercartetus
31	213	30.5	85	6	O02790	O02790 macropus fu
32	213	30.5	85	6	O13105	O13105 dasyuroides
33	213	30.5	85	6	O02801	O02801 tachyglossu
34	212.5	30.4	87	6	Q9TTC3	Q9ttc3 cervus elap
35	212	30.4	85	6	O02803	O02803 trichosurus
36	178	25.5	186	12	Q9J5D9	Q9j5d9 fowlpox vir
37	162	23.2	185	6	Q9BFK7	Q9bfk7 erinaceus c
38	162	23.2	186	6	Q9BFL0	Q9bfl0 chaetophrac
39	160	22.9	185	11	Q99NV9	Q99nv9 pedetes cap
40	159	22.8	184	6	Q9BFJ5	Q9bfj5 tupaia mino
41	159	22.8	185	6	Q9BFK6	Q9bfk6 talpa altai
42	159	22.8	185	6	Q9BFK5	Q9bfk5 condylura c
43	159	22.8	186	6	Q9BFL3	Q9bfl3 choloepus h
44	159	22.8	186	6	Q9BFL2	Q9bfl2 choloepus d
45	159	22.8	186	6	Q9BFK9	Q9bfk9 tamandua te

ALIGNMENTS

RESULT 1
Q9CYL3
ID Q9CYL3 PRELIMINARY; PRT; 153 AA.
AC Q9CYL3;
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Brain derived neurotrophic factor.
GN BDNF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=EMBRYO;
RX MEDLINE=21085660; PubMed=11217851;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA Hayashizaki Y.;
RT "Functional annotation of a full-length mouse cDNA collection.";
RL Nature 409:685-690(2001).
DR EMBL; AK017559; BAB30805.1; -.
DR HSSP; P23560; 1B8M.

```
DR   MGD; MGI:88145; Bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   153 AA;  17519 MW;  CA8EB8944CEE5B37 CRC64;

  Query Match             49.4%;  Score 345;  DB 11;  Length 153;
  Best Local Similarity   53.7%;  Pred. No. 1.3e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db      39 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 94

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db      95 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 150

Qy     127 TGR 129
           ||
Db     151 RGR 153


RESULT 2
O97759
ID   O97759      PRELIMINARY;      PRT;   247 AA.
AC   O97759;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Ailurus fulgens (Lesser panda).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Procyonidae; Ailurus.
OX   NCBI_TaxID=9649;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Feng L.;
RT   "Giant Panda (GP) and Lesser Panda (LP) BDNF gene sequences and their
RT   deduced amino acid sequences.";
RL   Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U56639; AAD10843.1; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   247 AA;  27870 MW;  FE8C62CF1A6C03EE CRC64;

  Query Match             49.4%;  Score 345;  DB 6;  Length 247;
  Best Local Similarity   53.7%;  Pred. No. 2.2e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     133 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 188

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     189 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 244

Qy     127 TGR 129
           ||
Db     245 RGR 247


RESULT 3
Q8VHH4
ID   Q8VHH4      PRELIMINARY;      PRT;   249 AA.
AC   Q8VHH4;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Anorexia BDNF.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=B6C3FE-A/A-ANXA/+A;
RA   Kim S.J., Kim C.S., Cha Y.J., Song K.Y., Yeo M.G.;
RT   "Anorexia mouse ORF BDNF.";
RL   Submitted (DEC-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF459642; AAL58475.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   249 AA;  28109 MW;  21CEAEA60A235D97 CRC64;

  Query Match             49.4%;  Score 345;  DB 11;  Length 249;
  Best Local Similarity   53.7%;  Pred. No. 2.2e-26;
  Matches   66;  Conservative   22;  Mismatches   25;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||::| |||  |::||||: |  | || :|| : |  |:|||:||:|
Db     135 ARRGELSVCDSISEWVTAADKKTAVDMSGGTVTVLEKVPVSKGQ-LKQYFYETKCNP--- 190

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |    ||||:|:||| |:|:  |||||||  :: |:|||:|||||:|||||  :
Db     191 ----MGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDSKKRIGWRFIRIDTSCVCTLTIK 246

Qy     127 TGR 129
           ||
Db     247 RGR 249


RESULT 4
Q9I8L2
ID   Q9I8L2      PRELIMINARY;      PRT;   177 AA.
AC   Q9I8L2;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   BDNF (Fragment).
OS   Poephila guttata (Zebra finch) (Taeniopygia guttata).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Passeriformes; Estrildidae;
OC   Estrildinae; Taeniopygia.
OX   NCBI_TaxID=59729;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20193595; PubMed=10727739;
RA   Johnson F., Norstrom E., Soderstrom K.;
RT   "Increased expression of endogenous biotin, but not BDNF, in
RT   telencephalic song regions during zebra finch vocal learning.";
RL   Brain Res. Dev. Brain Res. 120:113-123(2000).
DR   EMBL; AF255389; AAF78050.2; -.
DR   HSSP; P23560; 1B8M.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
```

```
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   177 AA;  20273 MW;  BDB9031515BD369D CRC64;

  Query Match             48.1%;  Score 336;  DB 13;  Length 177;
  Best Local Similarity   53.7%;  Pred. No. 1.2e-25;
  Matches   66;  Conservative   19;  Mismatches   28;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||: | |||  :::|||||: |  | || :||   |  |:|||:||:|
Db      63 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQ-LKQYFYETKCNP--- 118

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |   ||||:|:|||  |:|:  ||||||||   : |||||:|||||:|||||  :
Db     119 ----KGYTKEGCRGIDKRHWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIK 174

Qy     127 TGR 129
           ||
Db     175 RGR 177


RESULT 5
Q8QG74
ID   Q8QG74      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG74;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Cyclophiops major.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC   Colubridae; Colubrinae; Cyclophiops.
OX   NCBI_TaxID=192173;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497715; AAM18716.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27773 MW;  BA01780349F37856 CRC64;

  Query Match             47.9%;  Score 334;  DB 13;  Length 246;
  Best Local Similarity   52.8%;  Pred. No. 2.7e-25;
  Matches   65;  Conservative   20;  Mismatches   28;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||: | |||  :::|||||: |  | || :||   |  |:|||:||:|
Db     132 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQ-LKQYFYETKCST--- 187

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |   ||||:|:|:|  |:|:  ||||||||   : |||||:|||||:|||||  :
Db     188 ----KGYAKEGCRGIDKRYWNSQCRTTQSYVRALTTDNKKRVGWRFIRIDTSCVCTLTIK 243

Qy     127 TGR 129
           ||
Db     244 RGR 246


RESULT 6
Q8QG75
ID   Q8QG75      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG75;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Phrynocephalus hongyuanensis.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Agaminae;
OC   Phrynocephalus.
OX   NCBI_TaxID=171648;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497714; AAM18715.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27792 MW;  7709D3058B7AFA30 CRC64;

  Query Match             47.6%;  Score 332;  DB 13;  Length 246;
  Best Local Similarity   52.8%;  Pred. No. 4.2e-25;
  Matches   65;  Conservative   21;  Mismatches   27;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||||:|||: | |||  :::|||||: |  | || :||   |  |:|||:||:| :
Db     132 ARRGELSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQ-LKQYFYETKCNS--- 187

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |   ||||:|:|:|  |:|:  ||||||||   : |||||:|||||:|||||  :
Db     188 ----KGYTKEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIK 243

Qy     127 TGR 129
           ||
Db     244 RGR 246


RESULT 7
Q8QG76
ID   Q8QG76      PRELIMINARY;      PRT;   246 AA.
AC   Q8QG76;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
GN   BDNF.
OS   Japalura splendida.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Iguania; Acrodonta; Agamidae; Draconinae;
OC   Japalura.
OX   NCBI_TaxID=118209;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Molecular cloning of brain derived neurotrophic factor gene from
RT   amphibians and reptiles and its application in the research of
RT   phylogeny and taxonomy.";
RL   Submitted (APR-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF497713; AAM18714.1; -.
FT   CHAIN       128    246       BRAIN DERIVED NEUROTROPHIC FACTOR
FT                                PRECURSOR.
SQ   SEQUENCE   246 AA;  27883 MW;  47B1A03DA838FD78 CRC64;

  Query Match             47.0%;  Score 328;  DB 13;  Length 246;
  Best Local Similarity   52.0%;  Pred. No. 1.1e-24;
  Matches   64;  Conservative   21;  Mismatches   28;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :|||| :|||: | |||  :::|||||: |  | || :||   |  |:|||:||:| :
Db     132 ARRGEFSVCDSTSEWVTAAEKKTAVDMSGATVTVLEKVPVPKGQ-LKQYFYETKCNS--- 187

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
             |   ||||:|:|:|  |:|:  ||||||||   : |||||:|||||:|||||  :
Db     188 ----KGYTKEGCRGIDKRYWNSQCRTTQSYVRALTMDNKKRVGWRFIRIDTSCVCTLTIK 243
```

```
Qy     127 TGR 129
           ||
Db     244 RGR 246


RESULT 8
Q9YH42
ID   Q9YH42      PRELIMINARY;      PRT;   270 AA.
AC   Q9YH42;
DT   01-MAY-1999 (TrEMBLrel. 10, Created)
DT   01-MAY-1999 (TrEMBLrel. 10, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Brain-derived neurotrophic factor.
GN   BDNF.
OS   Brachydanio rerio (Zebrafish) (Zebra danio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Hashimoto M., Heinrich G.;
RL   Submitted (DEC-1995) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U42489; AAD00016.1; -.
DR   HSSP; P23560; 1B8M.
DR   ZFIN; ZDB-GENE-000412-1; bdnf.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   270 AA;  29482 MW;  6BF136101B4E45C0 CRC64;

  Query Match           46.8%;  Score 327;  DB 13;  Length 270;
  Best Local Similarity  50.4%;  Pred. No. 1.5e-24;
  Matches   62;  Conservative   25;  Mismatches   26;  Indels   10;  Gaps    3;

Qy       9 SRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNA 66
           :| |||:|||::| |||  |::||:|: |: | || :||   |  |:|||:||:|
Db     156 ARWGELSVCDSISQWVTAVDKKTAIDMSGQTVTVLEKVPVTNGQ-LKQYFYETKCNP--- 211

Qy      67 EEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCTLLSR 126
                |    ||||:|:||: |:|:  |||||||  :: ::|||:|||||:|||||  :
Db     212 ----LGYTKEGCRGIDKRHYNSQCRTTQSYVRALTMDSKRKIGWRFIRIDTSCVCTLTIK 267

Qy     127 TGR 129
           ||
Db     268 RGR 270


RESULT 9
Q9XY95
ID   Q9XY95      PRELIMINARY;      PRT;   324 AA.
AC   Q9XY95;
DT   01-NOV-1999 (TrEMBLrel. 12, Created)
DT   01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Neurotrophin.
GN   NT1.
OS   Lampetra fluviatilis (River lamprey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC   Petromyzontiformes; Petromyzontidae; Lampetra.
OX   NCBI_TaxID=7748;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=LIVER;
RX   MEDLINE=99003404; PubMed=9786977;
RA   Hallbook F., Lundin L.G., Kullander K.;
RT   "Lampetra fluviatilis neurotrophin homolog, descendant of a
RT   neurotrophin ancestor, discloses the early molecular evolution of
RT   neurotrophins in the vertebrate subphylum.";
RL   J. Neurosci. 18:8700-8711(1998).
DR   EMBL; AF071432; AAD22744.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   CHAIN      141    324       NEUROTROPHIN.
SQ   SEQUENCE   324 AA;  35267 MW;  9D6B56C1978F8485 CRC64;

  Query Match           46.3%;  Score 323.5;  DB 13;  Length 324;
  Best Local Similarity  44.5%;  Pred. No. 4e-24;
  Matches   69;  Conservative   14;  Mismatches   41;  Indels   31;  Gaps    4;

Qy       7 PASR--RGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGS---------------- 50
           |: |  |||   ||: | ||:|| || |: |  | ||||:  :  |
Db     170 PSRRPHRGEYPACDSESRWVSDRDTAFDITGMRVRVLGELSLSSSSASSSSSSSSSQPS 229

Qy      51 --PLRQYFFETRCKADNAEEG------------GPGAG-GGGCRGVDRRHWVSECKAKQS 95
             ::|||:|||||   |  |·                | | |  ||| |   | |:||  ||
Db     230 STSVKQYFYETRCKPAAAAAGTGIRSREAPSRFASGTGTGSACRGADELRWRSQCKTTQS 289

Qy      96 YVRALTAHAQGRVGWRWIRIDTACVCTLLSRTGRA 130
           :|||||  |:||: |||||:||||||||  | | |
Db     290 FVRALTEDARGRLAWRWIRLDTACVCTLTRRYGGA 324


RESULT 10
Q9N182
ID   Q9N182      PRELIMINARY;      PRT;   241 AA.
AC   Q9N182;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Neurotrophin-3 (Fragment).
OS   Macaca fuscata (Japanese macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9542;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RX   MEDLINE=99270338; PubMed=10340513;
RA   Okuno H., Tokuyama W., Li Y.X., Hashimoto T., Miyashita Y.;
RT   "Quantitative evaluation of neurotrophin and trk mRNA expression in
RT   visual and limbic areas along the occipito-temporo-hippocampal pathway
RT   in adult macaque monkeys.";
RL   J. Comp. Neurol. 408:378-398(1999).
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=BLOOD;
RA   Hashimoto T., Okuno H., Tokuyama W., Li Y.X., Miyashita Y.;
RT   "Expression of brain-derived neurotrophic factor, neurotrophin-3 and
RT   their receptor messenger RNAs in monkey rhinal cortex.";
RL   Neuroscience 0:0-0(2000).
DR   EMBL; AF222683; AAF33791.1; -.
DR   HSSP; P20783; 1B8K.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER       1      1
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  27803 MW;  AB95E457C7B07113 CRC64;

  Query Match           46.1%;  Score 322;  DB 6;  Length 241;
  Best Local Similarity  56.0%;  Pred. No. 4e-24;
  Matches   61;  Conservative   16;  Mismatches   24;  Indels    8;  Gaps    3;
```

```
Qy       9 SRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCKADNAEE 68
           | ||| :|||: | ||||: :|:|:|| :| ||||:   | ||::|||:|||||     |
Db     141 SHRGEYSVCDSESLWVTDKSSAIDIRGHQVTVLGEI-KTGNSPVKQYFYETRCK-----E 194

Qy      69 GGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDT 117
             |     ||||:| :|| |:||  |:|||||:     ||||||||||
Db     195 ARPVK--NGCRGIDDKHWNSQCKTSQTYVRALTSENNKLVGWRWIRIDT 241


RESULT 11
Q8QG77
ID   Q8QG77      PRELIMINARY;      PRT;   247 AA.
AC   Q8QG77;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Brain derived neurotrophic factor.
OS   Tylototriton taliangensis.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae;
OC   Tylototriton.
OX   NCBI_TaxID=129885;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Cao M., Yang Y.H., Zhang Y.Z.;
RT   "Cloning and sequence analysis of brain derived neurotrophic factor
RT   (BDNF) gene from Sichuan Newt (Tylototriton taliangensis).";
RL   Ying Yung Yu Huan Ching Sheng Wu Hsueh Pao 8:0-0(2002).
DR   EMBL; AF497712; AAM18078.1; -.
SQ   SEQUENCE   247 AA;  27841 MW;  FFCB5F28A7620DE0 CRC64;

  Query Match             45.5%;  Score 317.5;  DB 13;  Length 247;
  Best Local Similarity   51.2%;  Pred. No. 1.2e-23;
  Matches   65;  Conservative   22;  Mismatches   29;  Indels   11;  Gaps    4;

Qy       5 TAPASRRGELAVCDAVSGWVT--DRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           : || || ||:|||::| |||  |::||||: |: | || :||   |  |:|||:||:
Db     130 SGPA-RREELSVCDSISEWVTASDKKTAVDMSGQTVTVLEKVPVPEGQ-LKQYFYETK-- 185

Qy      63 ADNAEEGGPGAGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
                   |    ||||:|:|:| |:|:  ||||||||   : :||||:|||||:|||
Db     186 -----RNPMGYMKEGCRGIDKRYWNSQCRTTQSYVRALTVDNKKKVGWRFIRIDTSCVCT 240

Qy     123 LLSRTGR 129
           |  : ||
Db     241 LTIKRGR 247


RESULT 12
Q9P2Q8
ID   Q9P2Q8      PRELIMINARY;      PRT;   241 AA.
AC   Q9P2Q8;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037517; BAA90437.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26998 MW;  D5531ED825D96C14 CRC64;

  Query Match             42.6%;  Score 297.5;  DB 4;  Length 241;
  Best Local Similarity   46.5%;  Pred. No. 1.1e-21;
  Matches   59;  Conservative   20;  Mismatches   39;  Indels    9;  Gaps    3;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           | : |   ||| :|||:|| || |: || |::|:|| ||||| :   |  :||||||:|:
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEV-NINNSVFKQYFFETKCR 180

Qy      63 ADNAEEGGPGAGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
             |  :        ||||:| :|| | |    ::|:|||   : :  ||:|||||||||
Db     181 DPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWRFIRIDTACVCV 232

Qy     123 LLSRTGR 129
           |  : |
Db     233 LSRKAVR 239


RESULT 13
Q96P60
ID   Q96P60      PRELIMINARY;      PRT;   241 AA.
AC   Q96P60;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor beta.
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Zhang Y., Zhang B., Zhou Y., Peng X., Yuan J., Qiang B.;
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF411526; AAL05874.1; -.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   ProDom; PD002052; NGF; 1.
DR   PROSITE; PS00248; NGF_1; UNKNOWN_1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26964 MW;  745216485C21E558 CRC64;

  Query Match             42.6%;  Score 297.5;  DB 4;  Length 241;
  Best Local Similarity   45.7%;  Pred. No. 1.1e-21;
  Matches   58;  Conservative   22;  Mismatches   38;  Indels    9;  Gaps    3;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           | : |   ||| :|||:|| || |: || |::|:|| ||||| :   |  :|||||||:|:
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEV-SINNSVFKQYFFETKCR 180

Qy      63 ADNAEEGGPGAGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
             |  :        ||||:| :|| | |    ::|:|||   : :  ||:||||||||:|
Db     181 DPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWRFIRIDTACMCV 232

Qy     123 LLSRTGR 129
           |  : |
Db     233 LSRKAVR 239


RESULT 14
Q9UKL8
ID   Q9UKL8      PRELIMINARY;      PRT;   241 AA.
AC   Q9UKL8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE   Nerve growth factor B.
```

```
GN   NGFB.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99256269; PubMed=10322959;
RA   Tong Y., Wang H., Chen W.;
RT   "Cloning and sequencing of the gene for premature beta nerve growth
RT   factor.";
RL   Chung Kuo Ying Yung Sheng Li Hsueh Tsa Chih 13:316-318(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Tong Y., Wang H.;
RL   Submitted (MAY-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF150960; AAD55975.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
SQ   SEQUENCE   241 AA;  26959 MW;  619DFC65EB3BD671 CRC64;

  Query Match             42.6%;  Score 297.5;  DB 4;  Length 241;
  Best Local Similarity   46.5%;  Pred. No. 1.1e-21;
  Matches   59;  Conservative   20;  Mismatches   39;  Indels    9;  Gaps    3;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           | : |   ||| :|||:|| || |: || |::|:|| |||||     |  :||||||:|:
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEV-NINNSVFKQYFFETKCR 180

Qy      63 ADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
             |  :        ||||:| :|| | |    ::|:|||   : :  ||:||||||||
Db     181 DPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWRFIRIDTACVCV 232

Qy     123 LLSRTGR 129
           |  :  |
Db     233 LSRKAVR 239


RESULT 15
Q9N2F1
ID   Q9N2F1      PRELIMINARY;      PRT;   241 AA.
AC   Q9N2F1;
DT   01-OCT-2000 (TrEMBLrel. 15, Created)
DT   01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Beta-nerve growth factor (Fragment).
GN   BETA-NGF.
OS   Pan troglodytes (Chimpanzee).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX   NCBI_TaxID=9598;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=CHIMP-220;
RA   Kitano T., Kobayakawa H., Saitou N.;
RT   "Silver Project.";
RL   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AB037518; BAA90438.1; -.
DR   HSSP; P01139; 1BET.
DR   InterPro; IPR002072; NGF.
DR   Pfam; PF00243; NGF; 1.
DR   PRINTS; PR00268; NGF.
DR   ProDom; PD002052; NGF; 1.
DR   SMART; SM00140; NGF; 1.
DR   PROSITE; PS00248; NGF_1; 1.
DR   PROSITE; PS50270; NGF_2; 1.
FT   NON_TER     241    241
SQ   SEQUENCE   241 AA;  26868 MW;  B39FAA8912C00A0B CRC64;

  Query Match             42.6%;  Score 297.5;  DB 6;  Length 241;
  Best Local Similarity   46.5%;  Pred. No. 1.1e-21;
  Matches   59;  Conservative   20;  Mismatches   39;  Indels    9;  Gaps    3;

Qy       3 SETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETRCK 62
           | : |   ||| :|||:|| || |: || |::|:|| |||||     |  :||||||:|:
Db     122 SSSHPIFHRGEFSVCDSVSVWVGDKTTATDIKGKEVMVLGEV-NINNSVFKQYFFETKCR 180

Qy      63 ADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACVCT 122
             |  :        ||||:| :|| | |    ::|:|||   : :  ||:||||||||
Db     181 DPNPVD-------SGCRGIDSKHWNSYCTTTHTFVKALTMDGK-QAAWRFIRIDTACVCV 232

Qy     123 LLSRTGR 129
           |  :  |
Db     233 LSRKAVR 239


Search completed: December  2, 2002, 15:12:03
Job time : 21.1172 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:05:42 ; Search time 8.99179 Seconds
(without alignments)
425.386 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	698	100.0	130	3	US-08-970-865-6	Sequence 6, Appli
2	698	100.0	130	3	US-08-581-662-1	Sequence 1, Appli
3	698	100.0	130	4	US-09-363-573-6	Sequence 6, Appli
4	698	100.0	130	4	US-09-675-503-6	Sequence 6, Appli
5	698	100.0	130	4	US-09-664-295-1	Sequence 1, Appli
6	689	98.7	130	1	US-08-440-049-5	Sequence 5, Appli
7	689	98.7	130	2	US-08-441-513A-5	Sequence 5, Appli
8	689	98.7	130	5	PCT-US95-06918-6	Sequence 6, Appli
9	689	98.7	168	1	US-08-451-947-6	Sequence 6, Appli
10	689	98.7	168	2	US-08-424-826A-6	Sequence 6, Appli
11	689	98.7	168	3	US-08-928-694-6	Sequence 6, Appli
12	689	98.7	168	5	PCT-US91-06950-6	Sequence 6, Appli
13	689	98.7	210	1	US-08-451-947-2	Sequence 2, Appli
14	689	98.7	210	2	US-08-424-826A-2	Sequence 2, Appli
15	689	98.7	210	3	US-08-928-694-2	Sequence 2, Appli
16	689	98.7	210	5	PCT-US91-06950-2	Sequence 2, Appli
17	689	98.7	215	1	US-07-796-106-23	Sequence 23, Appl
18	685	98.1	130	1	US-08-451-947-62	Sequence 62, Appl
19	685	98.1	130	1	US-08-451-947-68	Sequence 68, Appl
20	685	98.1	130	2	US-08-424-826A-62	Sequence 62, Appl
21	685	98.1	130	2	US-08-424-826A-68	Sequence 68, Appl
22	685	98.1	130	3	US-08-928-694-62	Sequence 62, Appl
23	685	98.1	130	3	US-08-928-694-68	Sequence 68, Appl
24	685	98.1	130	5	PCT-US91-06950-62	Sequence 62, Appl
25	685	98.1	130	5	PCT-US91-06950-68	Sequence 68, Appl
26	684	98.0	130	1	US-08-451-947-22	Sequence 22, Appl
27	684	98.0	130	1	US-08-451-947-59	Sequence 59, Appl
28	684	98.0	130	1	US-08-451-947-61	Sequence 61, Appl
29	684	98.0	130	1	US-08-451-947-63	Sequence 63, Appl
30	684	98.0	130	1	US-08-451-947-64	Sequence 64, Appl
31	684	98.0	130	1	US-08-451-947-69	Sequence 69, Appl
32	684	98.0	130	2	US-08-424-826A-22	Sequence 22, Appl
33	684	98.0	130	2	US-08-424-826A-59	Sequence 59, Appl
34	684	98.0	130	2	US-08-424-826A-61	Sequence 61, Appl
35	684	98.0	130	2	US-08-424-826A-63	Sequence 63, Appl
36	684	98.0	130	2	US-08-424-826A-64	Sequence 64, Appl
37	684	98.0	130	2	US-08-424-826A-69	Sequence 69, Appl
38	684	98.0	130	3	US-08-928-694-22	Sequence 22, Appl
39	684	98.0	130	3	US-08-928-694-59	Sequence 59, Appl
40	684	98.0	130	3	US-08-928-694-61	Sequence 61, Appl
41	684	98.0	130	3	US-08-928-694-63	Sequence 63, Appl
42	684	98.0	130	3	US-08-928-694-64	Sequence 64, Appl
43	684	98.0	130	3	US-08-928-694-69	Sequence 69, Appl
44	684	98.0	130	5	PCT-US91-06950-22	Sequence 22, Appl
45	684	98.0	130	5	PCT-US91-06950-59	Sequence 59, Appl

ALIGNMENTS

```
RESULT 1
US-08-970-865-6
; Sequence 6, Application US/08970865
; Patent No. 6005081
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6005081-1997
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-970-865-6

  Query Match            100.0%;  Score 698;  DB 3;  Length 130;
  Best Local Similarity  100.0%;  Pred. No. 5.2e-73;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
```

```
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130


RESULT 2
US-08-581-662-1
; Sequence 1, Application US/08581662
; Patent No. 6121235
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: P0981
;  CURRENT APPLICATION NUMBER: US/08/581,662
;  CURRENT FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 36
; SEQ ID NO 1
;   LENGTH: 130
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-08-581-662-1

  Query Match             100.0%;  Score 698;  DB 3;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 5.2e-73;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130


RESULT 3
US-09-363-573-6
; Sequence 6, Application US/09363573
; Patent No. 6184360
;  GENERAL INFORMATION:
;    APPLICANT:  Louis E. Burton, Charles H. Schmelzer, Joanne T. Beck
;    TITLE OF INVENTION:  Purification of NGF
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/363,573
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/970,865
;      FILING DATE:  14-No. 6184360-1997
;      APPLICATION NUMBER:  60/030838
;      FILING DATE:  11/15/1996
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/047855
;      FILING DATE:  5/29/1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P1063R2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-09-363-573-6

  Query Match             100.0%;  Score 698;  DB 4;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 5.2e-73;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130


RESULT 4
US-09-675-503-6
; Sequence 6, Application US/09675503
; Patent No. 6423831
; GENERAL INFORMATION:
;  APPLICANT:  Burton, Louis E.
;  APPLICANT:  Schmelzer, Charles H.
;  APPLICANT:  Beck, Joanne T.
;  TITLE OF INVENTION:  ISOLATION OF NEUROTROPHINS FROM A
;  TITLE OF INVENTION:  MIXTURE CONTAINING OTHER PROTEINS AND NEUROTROPHIN VARIANTS
;  TITLE OF INVENTION:  USING HYDROPHOBIC INTERACTION CHROMATOGRAPHY
;  FILE REFERENCE:  GENENT.037C2
;  CURRENT APPLICATION NUMBER: US/09/675,503
;  CURRENT FILING DATE:  2000-09-29
;  PRIOR APPLICATION NUMBER:  60/030838
;  PRIOR FILING DATE:  1996-11-15
;  PRIOR APPLICATION NUMBER:  60/047855
;  PRIOR FILING DATE:  1997-05-29
;  PRIOR APPLICATION NUMBER:  08/970865
;  PRIOR FILING DATE:  1997-11-14
;  PRIOR APPLICATION NUMBER:  09/363573
;  PRIOR FILING DATE:  1999-07-29
;  NUMBER OF SEQ ID NOS:  6
;  SOFTWARE:  FastSEQ for Windows Version 4.0
; SEQ ID NO 6
;   LENGTH: 130
;   TYPE: PRT
;   ORGANISM: Homo sapien
US-09-675-503-6

  Query Match             100.0%;  Score 698;  DB 4;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 5.2e-73;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
```

```
Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 5
US-09-664-295-1
; Sequence 1, Application US/09664295
; Patent No. 6429196
; GENERAL INFORMATION:
;  APPLICANT: Gao, Wei-Qiang
;  TITLE OF INVENTION: Treatment of Balance Impairments
;  FILE REFERENCE: GENENT.051C1
;  CURRENT APPLICATION NUMBER: US/09/664,295
;  CURRENT FILING DATE:  2000-09-18
;  PRIOR APPLICATION NUMBER: US 08/581,662
;  PRIOR FILING DATE: 1995-12-29
;  NUMBER OF SEQ ID NOS: 37
; SEQ ID NO 1
;   LENGTH: 130
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-664-295-1

  Query Match             100.0%;  Score 698;  DB 4;  Length 130;
  Best Local Similarity   100.0%;  Pred. No. 5.2e-73;
  Matches  130;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 6
US-08-440-049-5
; Sequence 5, Application US/08440049
; Patent No. 5728803
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/440,049
;      FILING DATE:  12-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-440-049-5

  Query Match             98.7%;  Score 689;  DB 1;  Length 130;
  Best Local Similarity   99.2%;  Pred. No. 5.7e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 7
US-08-441-513A-5
; Sequence 5, Application US/08441513A
; Patent No. 5981480
;  GENERAL INFORMATION:
;    APPLICANT:  Urfer, Roman
;    APPLICANT:  Presta, Leonard G.
;    APPLICANT:  Winslow, John W.
;    TITLE OF INVENTION:  Pantropic Neurotrophic Factors
;    NUMBER OF SEQUENCES:  20
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/441,513A
;      FILING DATE:  15-May-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/253937
;      FILING DATE:  03-JUN-1994
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0905C3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  Amino Acid
```

```
;      TOPOLOGY:  Linear
US-08-441-513A-5

  Query Match             98.7%;  Score 689;  DB 2;  Length 130;
  Best Local Similarity   99.2%;  Pred. No. 5.7e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 8
PCT-US95-06918-6
; Sequence 6, Application PC/TUS9506918
;  GENERAL INFORMATION:
;    APPLICANT:  Genentech, Inc.
;    TITLE OF INVENTION:  PANTROPIC NEUROTROPHIC FACTORS
;    NUMBER OF SEQUENCES:  8
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US95/06918
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  905PCT
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
PCT-US95-06918-6

  Query Match             98.7%;  Score 689;  DB 5;  Length 130;
  Best Local Similarity   99.2%;  Pred. No. 5.7e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 9
US-08-451-947-6
; Sequence 6, Application US/08451947
; Patent No. 5702906
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/451,947
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  168 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-451-947-6

  Query Match             98.7%;  Score 689;  DB 1;  Length 168;
  Best Local Similarity   99.2%;  Pred. No. 7.9e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      39 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 98

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      99 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 158

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     159 CTLLSRTGRA 168
```

```
RESULT 10
US-08-424-826A-6
; Sequence 6, Application US/08424826A
; Patent No. 5830858
;  GENERAL INFORMATION:
;    APPLICANT:  Rosenthal, Arnon
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  98
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/424,826A
;      FILING DATE:  19-Apr-1995
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240387
;      FILING DATE:  10-May-1994
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  25-SEP-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P1C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  168 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-424-826A-6

  Query Match             98.7%;  Score 689;  DB 2;  Length 168;
  Best Local Similarity   99.2%;  Pred. No. 7.9e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      39 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 98

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db      99 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 158

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     159 CTLLSRTGRA 168


RESULT 11
US-08-928-694-6
; Sequence 6, Application US/08928694
; Patent No. 6037320
;  GENERAL INFORMATION:
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/928,694
;      FILING DATE:  12-Sep-1997
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/451947
;      FILING DATE:  26-MAY-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P2C1D2C1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  168 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-928-694-6

  Query Match             98.7%;  Score 689;  DB 3;  Length 168;
  Best Local Similarity   99.2%;  Pred. No. 7.9e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      39 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 98

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||
Db      99 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 158

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     159 CTLLSRTGRA 168


RESULT 12
PCT-US91-06950-6
; Sequence 6, Application PC/TUS9106950
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
```

```
;       STREET:  460 Point San Bruno Blvd
;       CITY:  South San Francisco
;       STATE:  California
;       COUNTRY:  USA
;       ZIP:  94080
;     COMPUTER READABLE FORM:
;       MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;       COMPUTER:  IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:  patin (Genentech)
;     CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  PCT/US91/06950
;       FILING DATE:  19910924
;       CLASSIFICATION:  436
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  07/648482
;     PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  07/587707
;     ATTORNEY/AGENT INFORMATION:
;       NAME:  Hensley, Max D.
;       REGISTRATION NUMBER:  27,043
;       REFERENCE/DOCKET NUMBER:  666P1
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  415/266-1994
;       TELEFAX:  415/952-9881
;       TELEX:  910/371-7168
;   INFORMATION FOR SEQ ID NO:  6:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  168 amino acids
;       TYPE:  AMINO ACID
;       TOPOLOGY:  linear
PCT-US91-06950-6

  Query Match             98.7%;  Score 689;  DB 5;  Length 168;
  Best Local Similarity   99.2%;  Pred. No. 7.9e-72;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      39 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 98

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db      99 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 158

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     159 CTLLSRTGRA 168


RESULT 13
US-08-451-947-2
; Sequence 2, Application US/08451947
; Patent No. 5702906
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/451,947
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  210 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-451-947-2

  Query Match             98.7%;  Score 689;  DB 1;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 1e-71;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 14
US-08-424-826A-2
; Sequence 2, Application US/08424826A
; Patent No. 5830858
;  GENERAL INFORMATION:
;    APPLICANT:  Rosenthal, Arnon
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  98
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/424,826A
;      FILING DATE:  19-Apr-1995
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/240387
;      FILING DATE:  10-May-1994
```

```
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  25-SEP-1990
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P1C2
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  210 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-424-826A-2

  Query Match             98.7%;  Score 689;  DB 2;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 1e-71;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 15
US-08-928-694-2
; Sequence 2, Application US/08928694
; Patent No. 6037320
;  GENERAL INFORMATION:
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  1 DNA Way
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5 inch, 1.44 Mb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WinPatin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/928,694
;      FILING DATE:  12-Sep-1997
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/451947
;      FILING DATE:  26-MAY-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, PhD., Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  P0666P2C1D2C1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  650/225-8674
;      TELEFAX:  650/952-9881
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  210 amino acids
;      TYPE:  Amino Acid
;      TOPOLOGY:  Linear
US-08-928-694-2

  Query Match             98.7%;  Score 689;  DB 3;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 1e-71;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


Search completed: December  2, 2002, 15:09:45
Job time : 9.99179 secs
```

```
; Sequence 60, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  60:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-60

  Query Match             97.9%;  Score 683;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 2.3e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||| |||||||||| ||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECHAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


Search completed: December  2, 2002, 15:14:35
Job time : 4.5721 secs
```

```
Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 13
US-08-450-842-20
; Sequence 20, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  20:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-20

  Query Match             97.9%;  Score 683;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 2.3e-60;
  Matches  128;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           ||||||||||||||||||||||:|||||||||||||||| ||||||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRYWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 14
US-08-450-842-23
; Sequence 23, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  23:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-23

  Query Match             97.9%;  Score 683;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 2.3e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||| |||||||||||||||||||||||||||||||| ||||||||||||||||||||
Db      61 CKADNATEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 15
US-08-450-842-60
```

```
Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||| |||||||||||||||| ||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRHHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130
```

RESULT 11
US-08-450-842-64
; Sequence 64, Application US/08450842
; Patent No. US20020045576A1
; GENERAL INFORMATION:
; APPLICANT: GENENTECH, INC.
; APPLICANT: ROSENTHAL, ARNON
; TITLE OF INVENTION: NOVEL NEUROTROPHIC FACTOR
; NUMBER OF SEQUENCES: 100
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 460 Point San Bruno Blvd
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/450,842
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/426419
; FILING DATE: 19-APR-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/030013
; FILING DATE: 22-MAR-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/648482
; FILING DATE: 31-JAN
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/587707
; FILING DATE: 1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Torchia, Timothy E.
; REGISTRATION NUMBER: 36,700
; REFERENCE/DOCKET NUMBER: 666P2C1D3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-8674
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 64:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 130 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-450-842-64

Query Match 98.0%; Score 684; DB 8; Length 130;
Best Local Similarity 98.5%; Pred. No. 1.8e-60;
Matches 128; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||| |||||||||||||||| ||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRNHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130
```

RESULT 12
US-08-450-842-69
; Sequence 69, Application US/08450842
; Patent No. US20020045576A1
; GENERAL INFORMATION:
; APPLICANT: GENENTECH, INC.
; APPLICANT: ROSENTHAL, ARNON
; TITLE OF INVENTION: NOVEL NEUROTROPHIC FACTOR
; NUMBER OF SEQUENCES: 100
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 460 Point San Bruno Blvd
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/450,842
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/426419
; FILING DATE: 19-APR-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/030013
; FILING DATE: 22-MAR-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/648482
; FILING DATE: 31-JAN
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/587707
; FILING DATE: 1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Torchia, Timothy E.
; REGISTRATION NUMBER: 36,700
; REFERENCE/DOCKET NUMBER: 666P2C1D3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-8674
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 69:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 130 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-450-842-69

Query Match 98.0%; Score 684; DB 8; Length 130;
Best Local Similarity 98.5%; Pred. No. 1.8e-60;
Matches 128; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

```
Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||||||||||||||||||||| ||||||||||||:||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRINTACV 120
```

```
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-59

  Query Match             98.0%;  Score 684;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.8e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||| |||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLHQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 9
US-08-450-842-61
; Sequence 61, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  61:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-61

  Query Match             98.0%;  Score 684;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.8e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||| |||| ||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRFGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 10
US-08-450-842-63
; Sequence 63, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  63:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-63

  Query Match             98.0%;  Score 684;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.8e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;
```

```
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  68:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-68

  Query Match             98.1%;  Score 685;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.4e-60;
  Matches  128;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||| ||||||||||||:||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIETACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 7
US-08-450-842-22
; Sequence 22, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  22:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-22

  Query Match             98.0%;  Score 684;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.8e-60;
  Matches  128;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||| |||||||||||||||||||||||||||||||||| ||||||||||||||||
Db      61 CKADNASEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 8
US-08-450-842-59
; Sequence 59, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  59:
;    SEQUENCE CHARACTERISTICS:
```

```
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  210 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-2

  Query Match             98.7%;  Score 689;  DB 8;  Length 210;
  Best Local Similarity   99.2%;  Pred. No. 9.5e-61;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      81 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 140

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||||||||||||||||||||| ||||||||||||||||
Db     141 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 200

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     201 CTLLSRTGRA 210


RESULT 5
US-08-450-842-62
; Sequence 62, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  62:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  130 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-62

  Query Match             98.1%;  Score 685;  DB 8;  Length 130;
  Best Local Similarity   98.5%;  Pred. No. 1.4e-60;
  Matches  128;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy      61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
           |||||||||||||||||||||:|||||||||||||||| ||||||||||||||||
Db      61 CKADNAEEGGPGAGGGGCRGVDRQHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 120

Qy     121 CTLLSRTGRA 130
           ||||||||||
Db     121 CTLLSRTGRA 130


RESULT 6
US-08-450-842-68
; Sequence 68, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
```

```
Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    121 CTLLSRTGRA 130


RESULT 2
US-09-813-398-12
; Sequence 12, Application US/09813398
; Patent No. US20020169292A1
; GENERAL INFORMATION:
;  APPLICANT: Bruce D. Weintraub
;  APPLICANT:  Mariusz W. Szkudlinski
;  APPLICANT:  University of Maryland
;  TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
;  FILE REFERENCE: UOFMD.003C1
;  CURRENT APPLICATION NUMBER: US/09/813,398
;  CURRENT FILING DATE:  2001-03-20
;  PRIOR APPLICATION NUMBER: PCT/US99/05908
;  PRIOR FILING DATE: 1999-03-19
;  PRIOR APPLICATION NUMBER: PCT/US98/19772
;  PRIOR FILING DATE: 1998-09-22
;  NUMBER OF SEQ ID NOS: 41
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 12
;   LENGTH: 131
;   TYPE: PRT
;   ORGANISM: HOMO SAPIEN
US-09-813-398-12

  Query Match             98.7%;  Score 689;  DB 9;  Length 131;
  Best Local Similarity   99.2%;  Pred. No. 5.9e-61;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      2 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 61

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||||||||||||||||| ||||||||||||||||||||||
Db     62 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 121

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    122 CTLLSRTGRA 131


RESULT 3
US-08-450-842-6
; Sequence 6, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/648482
;      FILING DATE:  31-JAN
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/587707
;      FILING DATE:  1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Torchia, Timothy E.
;      REGISTRATION NUMBER:  36,700
;      REFERENCE/DOCKET NUMBER:  666P2C1D3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  415/225-8674
;      TELEFAX:  415/952-9881
;      TELEX:  910/371-7168
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  168 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-450-842-6

  Query Match             98.7%;  Score 689;  DB 8;  Length 168;
  Best Local Similarity   99.2%;  Pred. No. 7.6e-61;
  Matches  129;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     39 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 98

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          |||||||||||||||||||||||||||||||||||| ||||||||||||||||||||||
Db     99 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTADAQGRVGWRWIRIDTACV 158

Qy    121 CTLLSRTGRA 130
          ||||||||||
Db    159 CTLLSRTGRA 168


RESULT 4
US-08-450-842-2
; Sequence 2, Application US/08450842
; Patent No. US20020045576A1
;  GENERAL INFORMATION:
;    APPLICANT:  GENENTECH, INC.
;    APPLICANT:  ROSENTHAL, ARNON
;    TITLE OF INVENTION:  NOVEL NEUROTROPHIC FACTOR
;    NUMBER OF SEQUENCES:  100
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Genentech, Inc.
;      STREET:  460 Point San Bruno Blvd
;      CITY:  South San Francisco
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94080
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  5.25 inch, 360 Kb floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  patin (Genentech)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/450,842
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/426419
;      FILING DATE:  19-APR-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/030013
;      FILING DATE:  22-MAR-1993
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: December 2, 2002, 15:08:47 ; Search time 4.5721 Seconds
(without alignments)
452.778 Million cell updates/sec

Title: US-10-072-681-6
Perfect score: 698
Sequence: 1 GVSETAPASRRGELAVCDAV.....RWIRIDTACVCTLLSRTGRA 130

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 102317 seqs, 15924203 residues

Total number of hits satisfying chosen parameters: 102317

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
6: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
11: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
13: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	698	100.0	130	12	US-10-072-681-6	Sequence 6, Appli
2	689	98.7	131	9	US-09-813-398-12	Sequence 12, Appl
3	689	98.7	168	8	US-08-450-842-6	Sequence 6, Appli
4	689	98.7	210	8	US-08-450-842-2	Sequence 2, Appli
5	685	98.1	130	8	US-08-450-842-62	Sequence 62, Appl
6	685	98.1	130	8	US-08-450-842-68	Sequence 68, Appl
7	684	98.0	130	8	US-08-450-842-22	Sequence 22, Appl
8	684	98.0	130	8	US-08-450-842-59	Sequence 59, Appl
9	684	98.0	130	8	US-08-450-842-61	Sequence 61, Appl
10	684	98.0	130	8	US-08-450-842-63	Sequence 63, Appl
11	684	98.0	130	8	US-08-450-842-64	Sequence 64, Appl
12	684	98.0	130	8	US-08-450-842-69	Sequence 69, Appl
13	683	97.9	130	8	US-08-450-842-20	Sequence 20, Appl
14	683	97.9	130	8	US-08-450-842-23	Sequence 23, Appl
15	683	97.9	130	8	US-08-450-842-60	Sequence 60, Appl
16	683	97.9	130	8	US-08-450-842-65	Sequence 65, Appl
17	683	97.9	130	8	US-08-450-842-70	Sequence 70, Appl
18	683	97.9	130	8	US-08-450-842-72	Sequence 72, Appl
19	682	97.7	130	8	US-08-450-842-66	Sequence 66, Appl
20	682	97.7	130	8	US-08-450-842-73	Sequence 73, Appl
21	681	97.6	130	8	US-08-450-842-17	Sequence 17, Appl
22	681	97.6	130	8	US-08-450-842-67	Sequence 67, Appl
23	680	97.4	130	8	US-08-450-842-18	Sequence 18, Appl
24	680	97.4	130	8	US-08-450-842-71	Sequence 71, Appl
25	679	97.3	130	8	US-08-450-842-19	Sequence 19, Appl
26	679	97.3	130	8	US-08-450-842-21	Sequence 21, Appl
27	677	97.0	130	8	US-08-450-842-13	Sequence 13, Appl
28	677	97.0	130	8	US-08-450-842-14	Sequence 14, Appl
29	677	97.0	130	8	US-08-450-842-15	Sequence 15, Appl
30	677	97.0	130	8	US-08-450-842-16	Sequence 16, Appl
31	669.5	95.9	129	8	US-08-450-842-53	Sequence 53, Appl
32	669.5	95.9	129	8	US-08-450-842-54	Sequence 54, Appl
33	651	93.3	130	8	US-08-450-842-47	Sequence 47, Appl
34	650	93.1	126	8	US-08-450-842-57	Sequence 57, Appl
35	642	92.0	124	8	US-08-450-842-55	Sequence 55, Appl
36	586	84.0	114	8	US-08-450-842-58	Sequence 58, Appl
37	571	81.8	105	8	US-08-450-842-31	Sequence 31, Appl
38	558	79.9	103	8	US-08-450-842-30	Sequence 30, Appl
39	540	77.4	142	8	US-08-450-842-52	Sequence 52, Appl
40	535.5	76.7	107	8	US-08-450-842-56	Sequence 56, Appl
41	535.5	76.7	132	8	US-08-450-842-51	Sequence 51, Appl
42	501.5	71.8	186	8	US-08-450-842-12	Sequence 12, Appl
43	494.5	70.8	216	8	US-08-450-842-8	Sequence 8, Appli
44	478.5	68.6	257	8	US-08-450-842-10	Sequence 10, Appl
45	468	67.0	92	8	US-08-450-842-50	Sequence 50, Appl

ALIGNMENTS

RESULT 1
US-10-072-681-6
; Sequence 6, Application US/10072681
; Patent No. US20020137893A1
; GENERAL INFORMATION:
; APPLICANT: Burton, Louis E.
; APPLICANT: Schmelzer, Charles H.
; APPLICANT: Beck, Joanne T.
; TITLE OF INVENTION: PURIFICATION OF NGF
; FILE REFERENCE: GENENT.037C3
; CURRENT APPLICATION NUMBER: US/10/072,681
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: 60/030838
; PRIOR FILING DATE: 1996-11-15
; PRIOR APPLICATION NUMBER: 60/047855
; PRIOR FILING DATE: 1997-05-29
; PRIOR APPLICATION NUMBER: 08/970865
; PRIOR FILING DATE: 1997-11-14
; PRIOR APPLICATION NUMBER: 09/363573
; PRIOR FILING DATE: 1999-07-29
; PRIOR APPLICATION NUMBER: 09/675,503
; PRIOR FILING DATE: 2000-09-29
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 6
; LENGTH: 130
; TYPE: PRT
; ORGANISM: Homo sapien
US-10-072-681-6

Query Match 100.0%; Score 698; DB 12; Length 130;
Best Local Similarity 100.0%; Pred. No. 7.7e-62;
Matches 130; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 GVSETAPASRRGELAVCDAVSGWVTDRRTAVDLRGREVEVLGEVPAAGGSPLRQYFFETR 60

Qy     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 CKADNAEEGGPGAGGGGCRGVDRRHWVSECKAKQSYVRALTAHAQGRVGWRWIRIDTACV 120
```